

Anand's Atlas of Histology



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ANAND'S ATLAS OF HISTOLOGY

WEB VERSION – 1.0

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ANAND'S ATLAS OF HISTOLOGY

THIS ATLAS WILL SERVE AS A RAPID REFERENCE
HANDBOOK FOR UNDERGRADUATE MEDICAL
STUDENTS AND POSTGRADUATES PRIOR TO
EXAMS

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ANAND'S ATLAS OF HISTOLOGY

THIS BOOK IS DIVIDED INTO TWO SECTIONS
EACH SECTION CONTAINS COLOUR PLATES
EACH COLOUR PLATE CONTAINS PICTURES IN
10X AND 40X VIEWS
EACH COLOUR PLATE IS FOLLOWED BY A
FEW IDENTIFICATION POINTS OF THE
PICTURE

SECTION – 1 = GENERAL HISTOLOGY

SECTION – 2 = SYSTEMIC HISTOLOGY

SECTION – 1

GENERAL HISTOLOGY

ANAND'S ATLAS OF HISTOLOGY

LIST OF COLOUR PLATES

SMOOTH MUSCLE

SKELETAL MUSCLE

CARDIAC MUSCLE

HYALINE CARTILAGE

WHITE FIBROCARTILAGE

ELASTIC CARTILAGE

COMPACT BONE – LONGITUDINAL SECTION

COMPACT BONE – TRANSVERSE SECTION

LIST OF COLOUR PLATES

LOOSE AREOLAR TISSUE

ADIPOSE TISSUE

THICK SKIN

THIN SKIN

PERIPHERAL NERVE – LONGITUDINAL SECTION

PERIPHERAL NERVE – TRANSVERSE SECTION

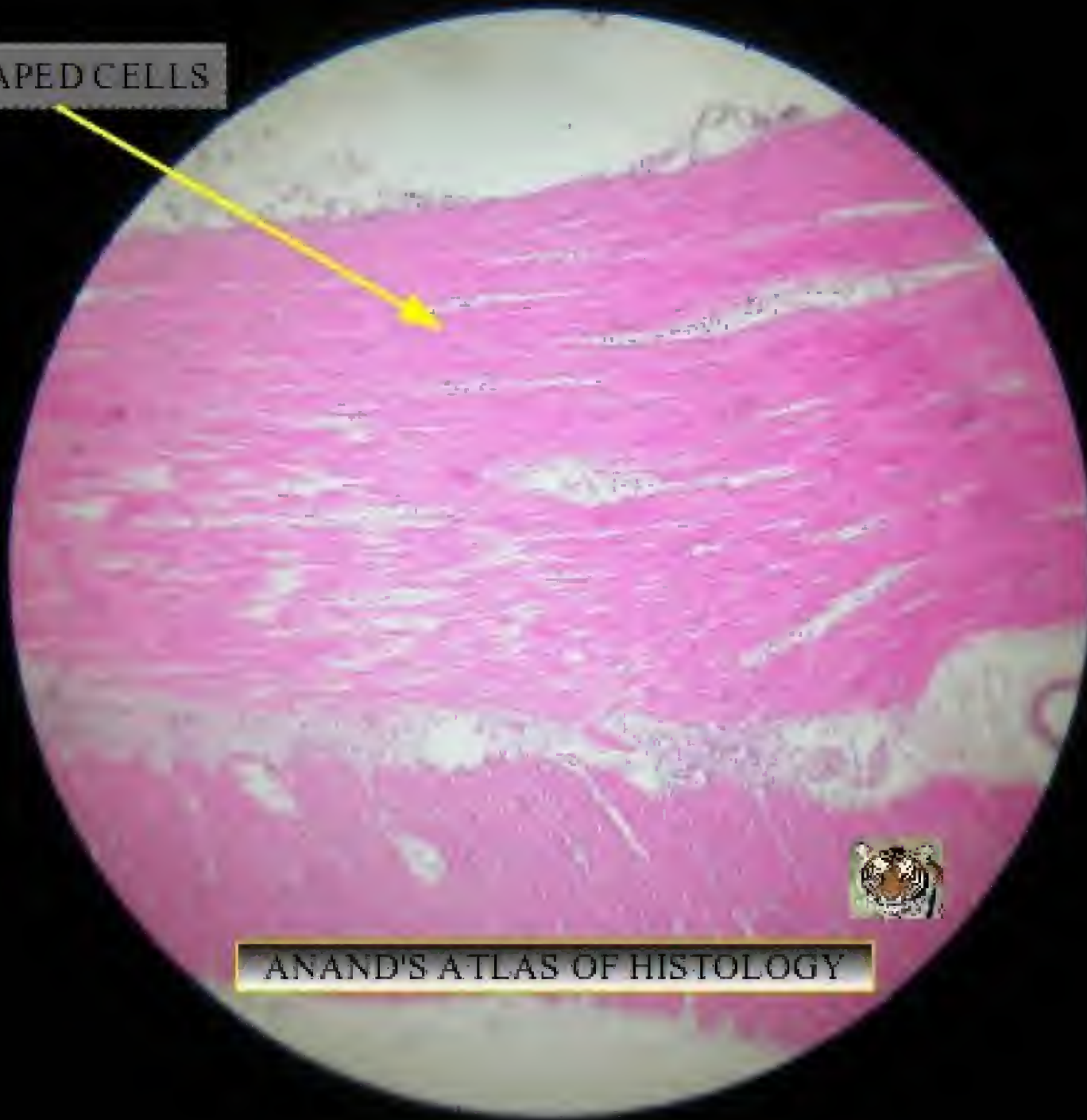
ELASTIC ARTERY

MUSCULAR ARTERY

LARGE VEIN

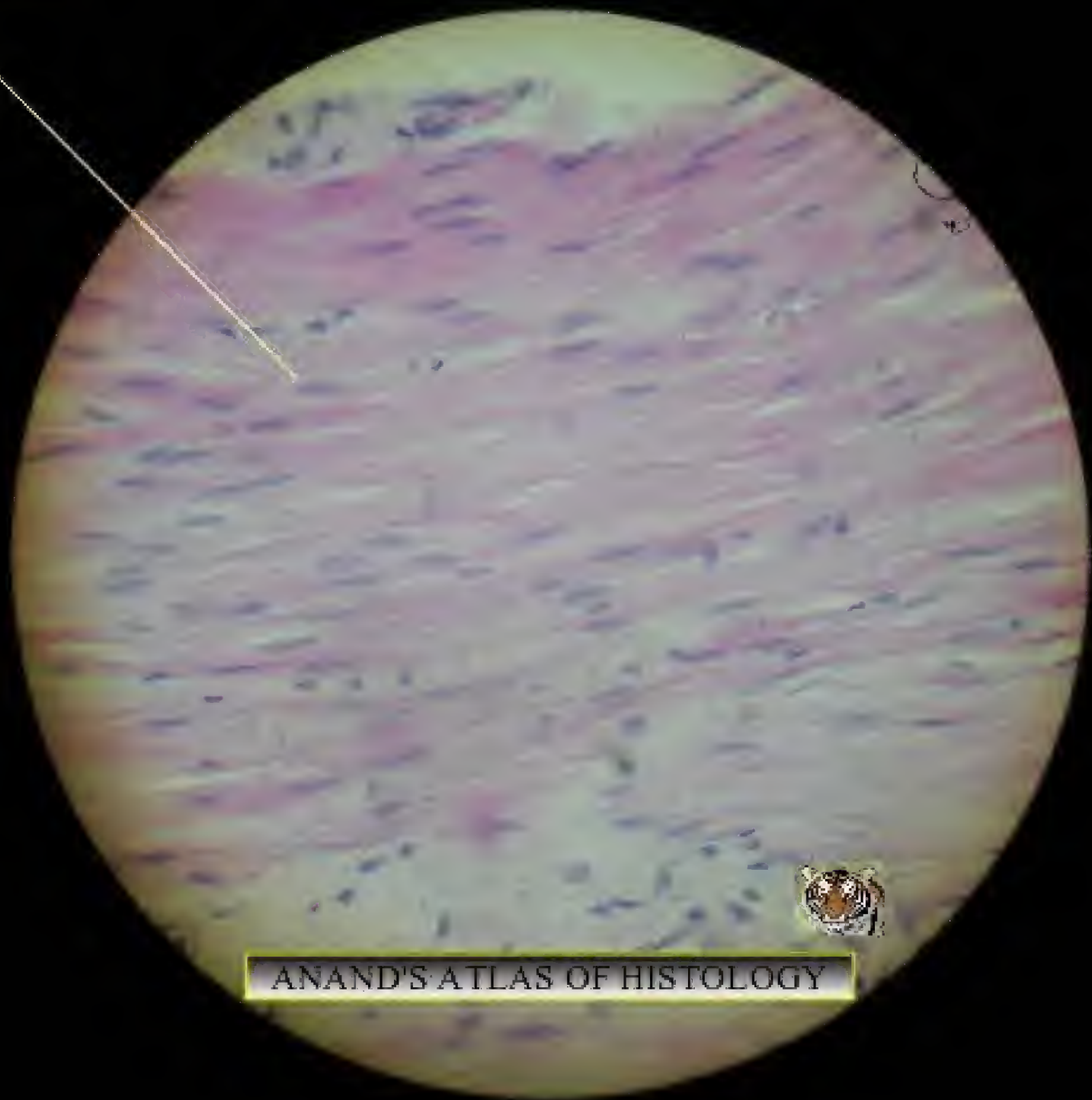
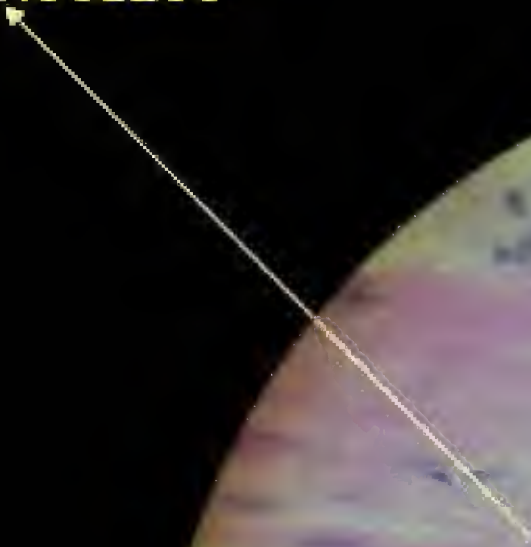
SMOOTH MUSCLE

SPINDLE SHAPED CELLS



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CENTRAL NUCLEUS



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SMOOTH MUSCLE

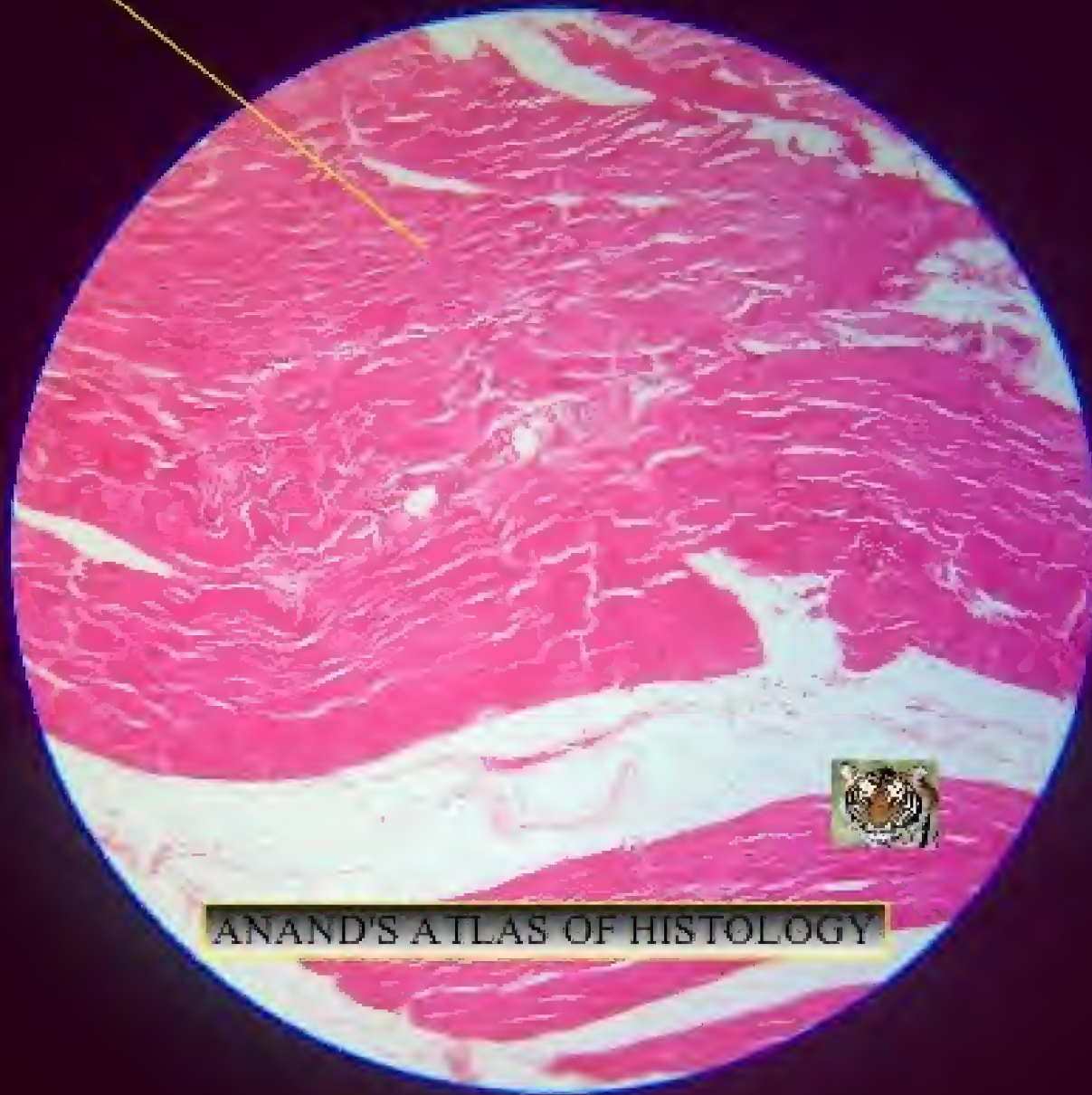
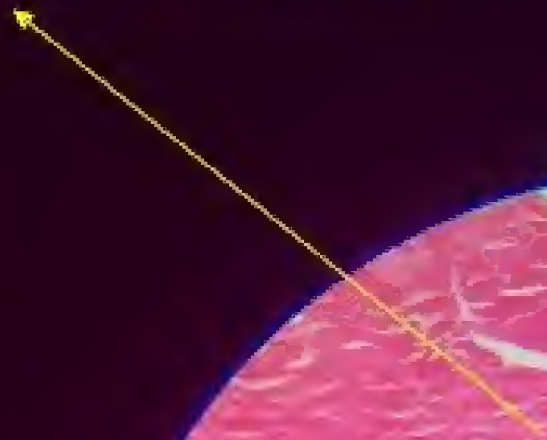
POINTS FOR IDENTIFICATION

1. MYOCYTES ARE SPINDLE SHAPED
2. MYOCYTES CONTAIN CENTRAL NUCLEUS

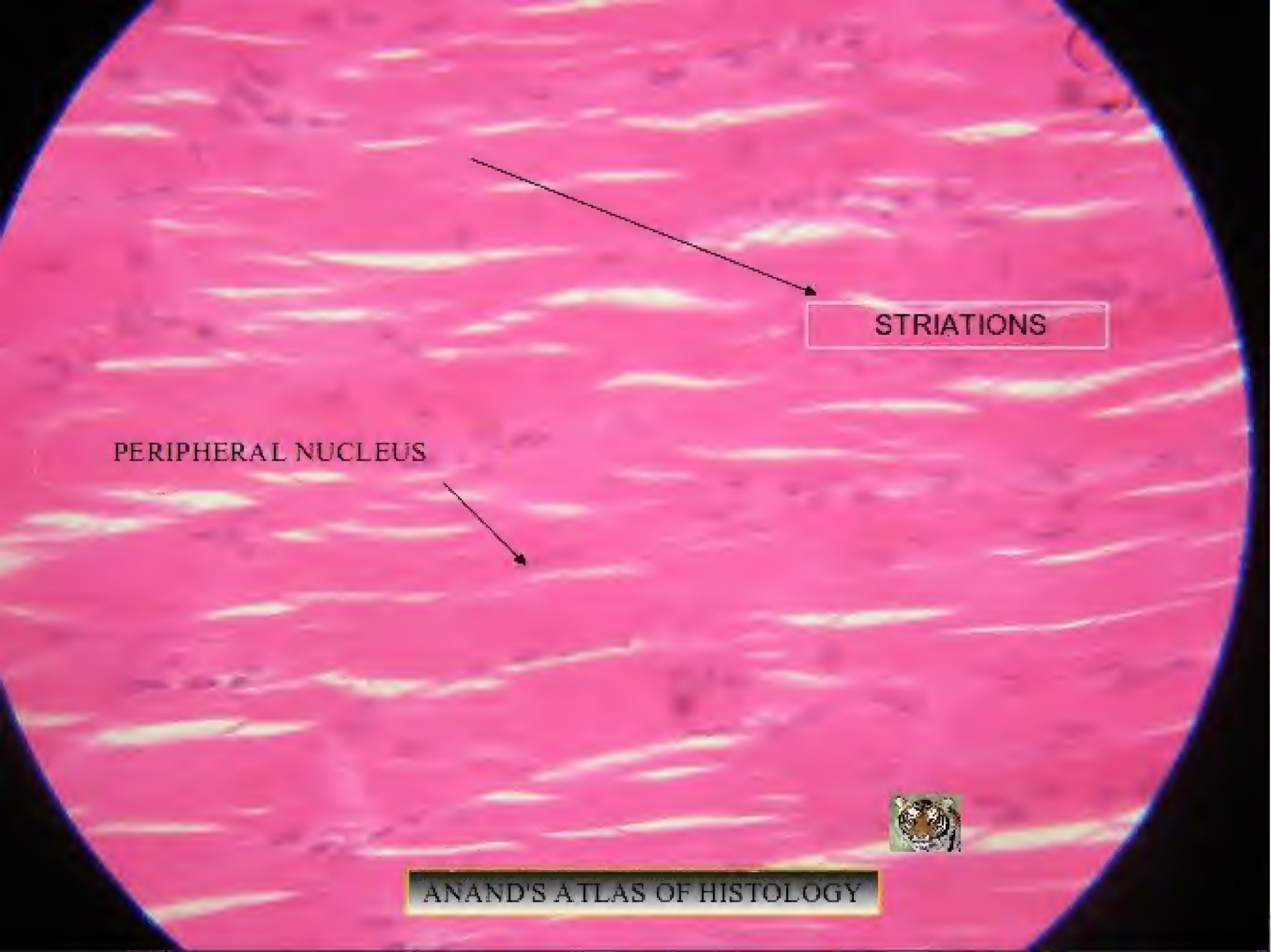
SKELETAL MUSCLE

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MUSCLE FIBRES DO NOT BRANCH



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STRIATIONS

PERIPHERAL NUCLEUS



SKELETAL MUSCLE

POINTS FOR IDENTIFICATION

1. MUSCLE FIBRES DO NOT BRANCH

2. NUCLEUS IS LOCATED IN THE PERIPHERY

3. PRESENCE OF CROSS STRIATIONS

CARDIAC MUSCLE



FIBRES ARE BRANCHING



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A light micrograph of skeletal muscle tissue stained with hematoxylin and eosin (H&E). The image shows multiple muscle fibers with prominent transverse striations. The fibers are arranged in parallel bundles. A black arrow points from a text label to a specific nucleus within one of the muscle fibers.

CENTRAL NUCLEUS

CARDIAC MUSCLE

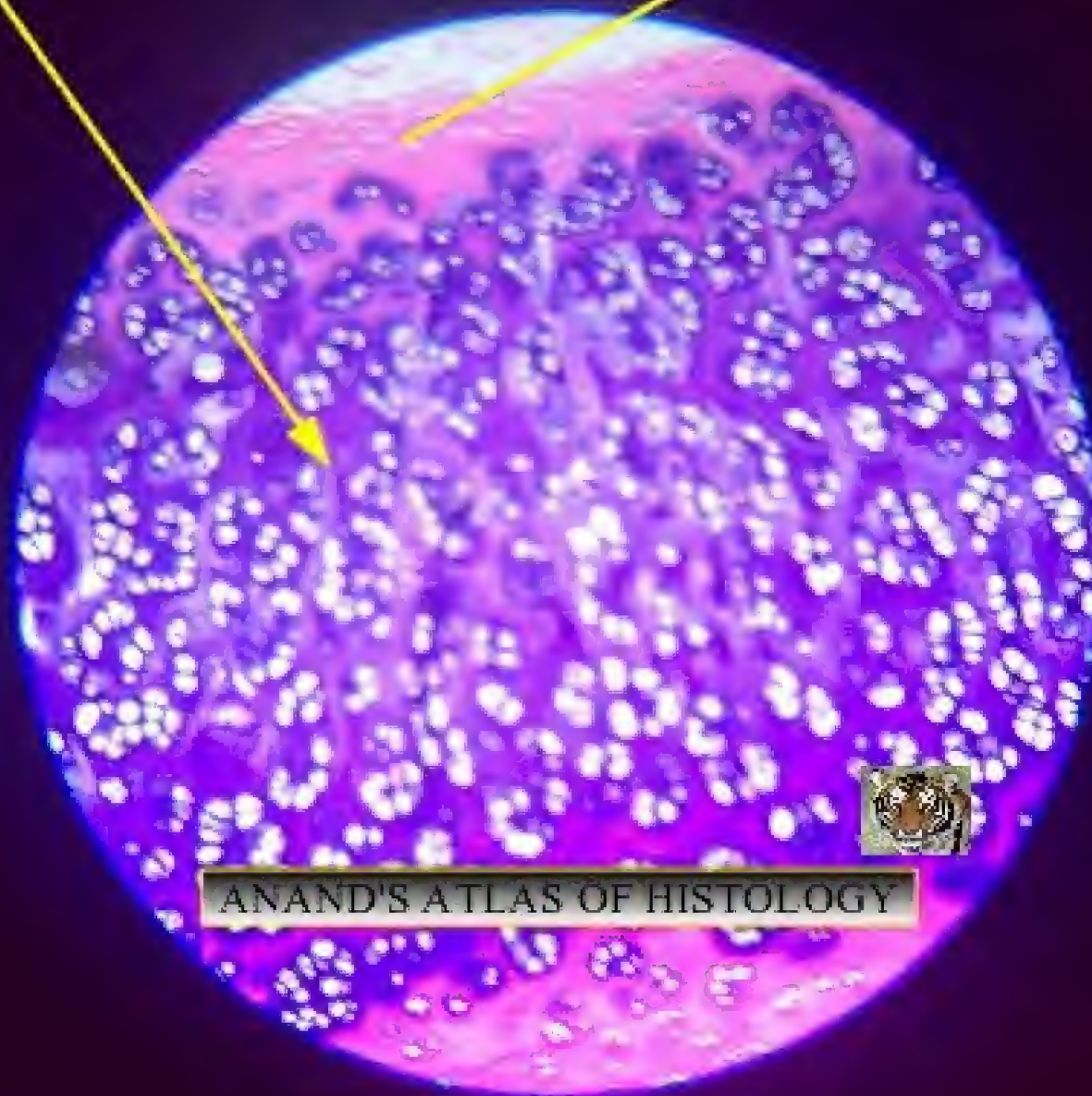
POINTS FOR IDENTIFICATION

1. MUSCLE FIBRES ARE BRANCHING
2. NUCLEUS IS CENTRALLY PLACED
3. PRESENCE OF INTERCALATED DISC

HYALINE CARTILAGE

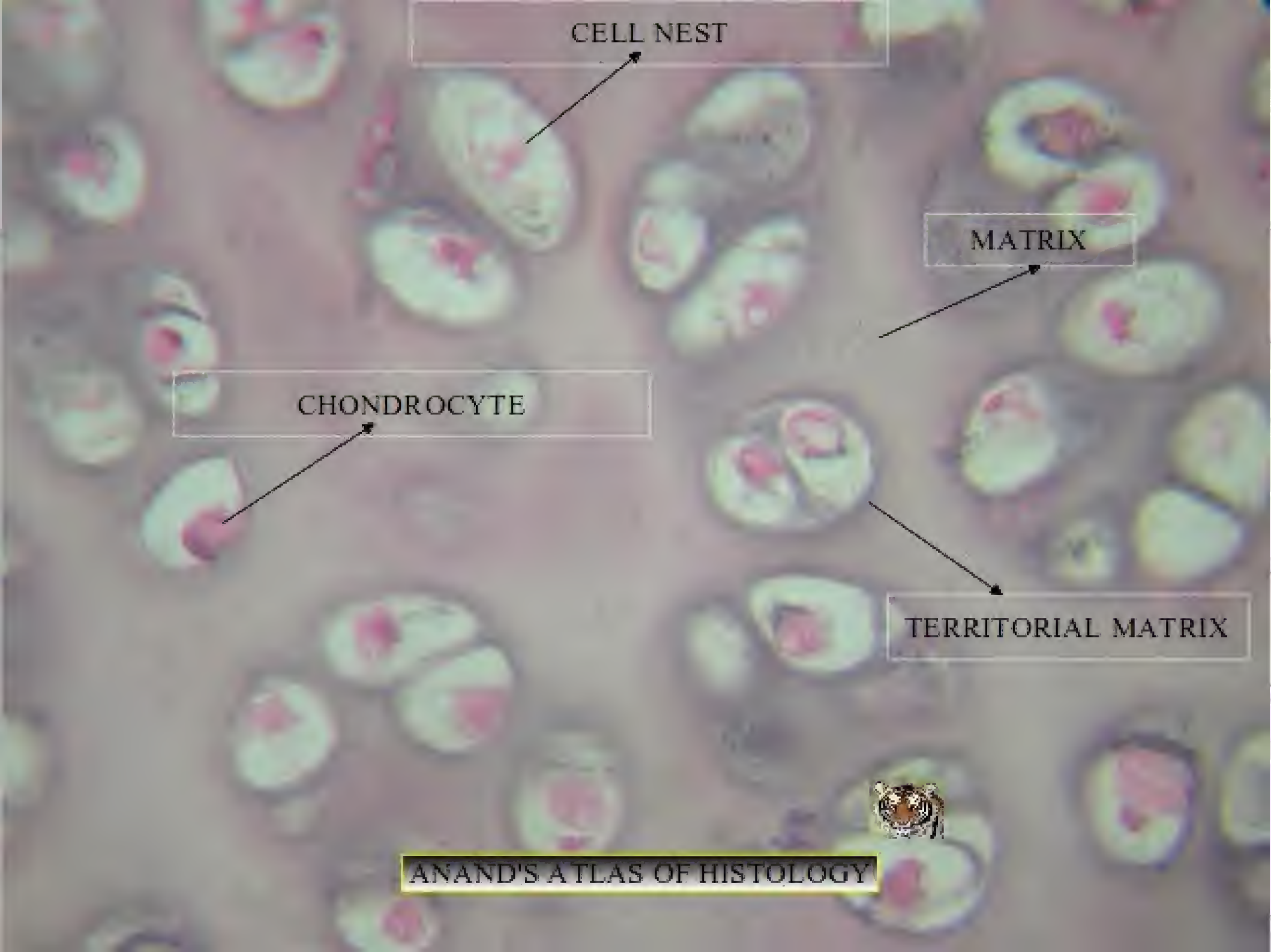
MATRIX

PERICHONDRIUM



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CELL NEST

MATRIX

CHONDROCYTE

TERRITORIAL MATRIX



HYALINE CARTILAGE

POINTS FOR IDENTIFICATION

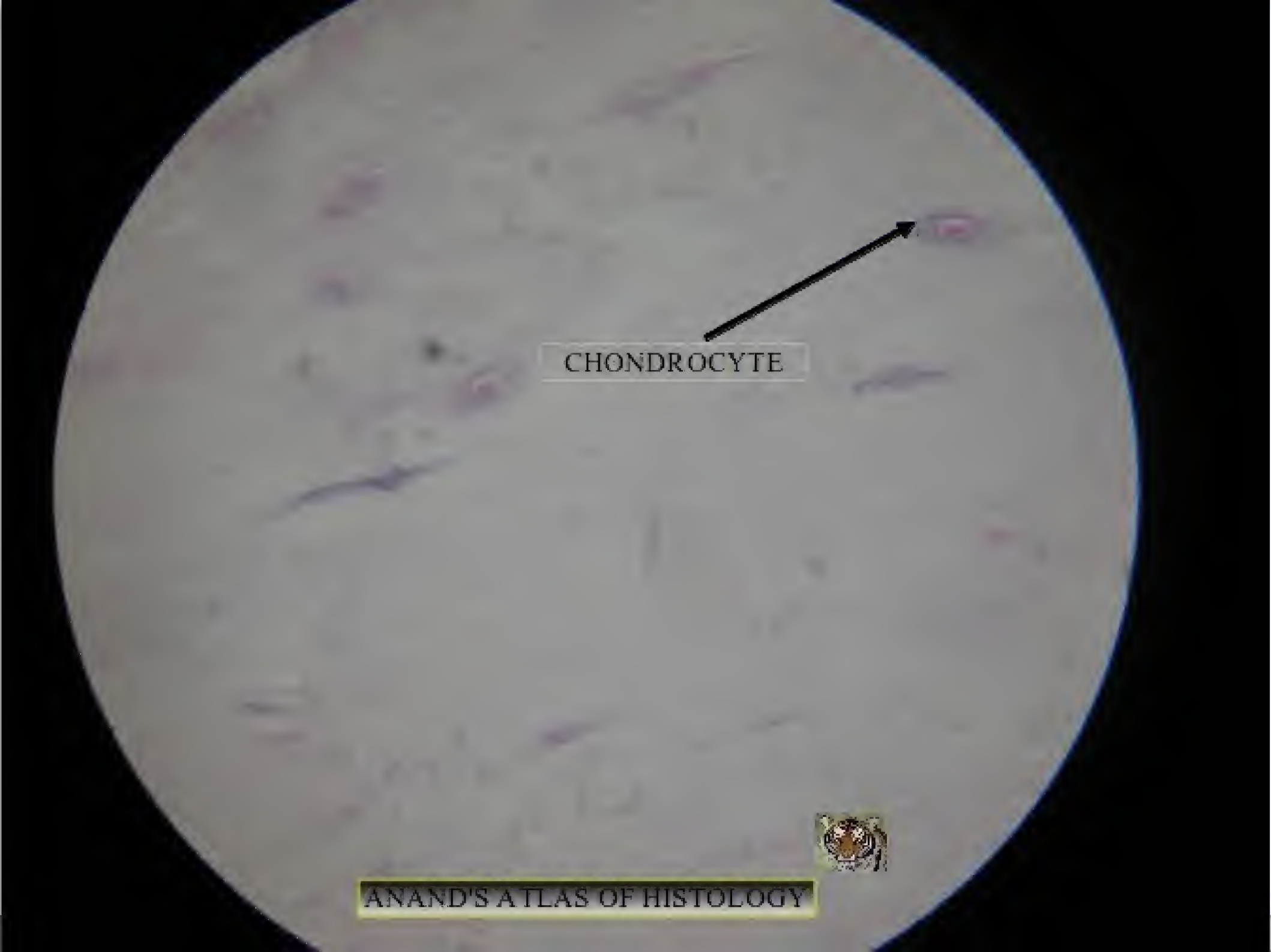
1. PRESENCE OF PERICHONDRIUM
2. PRESENCE OF CELL NESTS
3. PRESENCE OF CHONDROCYTES IN CELL NESTS
4. MATRIX CONTAINS COLLAGEN FIBRES

WHITE FIBRO CARTILAGE

COLLAGEN FIBRES



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CHONDROCYTE

A circular microscopic field of view showing cartilage tissue. The background is a pale, pinkish-grey matrix. Scattered throughout are numerous small, dark purple-stained cells, which are chondrocytes. One chondrocyte in the upper right quadrant is specifically highlighted by a black arrow pointing to it from the central text label.



WHITE FIBRO CARTILAGE

POINTS FOR IDENTIFICATION

1. ABSENCE OF PERICHONDRIUM
2. CHONDROCYTES ARE SEEN
ARRANGED IN ROWS
3. MATRIX IS MADE OF COLLAGEN
FIBRES

ELASTIC CARTILAGE

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CHONDROCYTES IN LACUNAE



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CHONDROCYTE IN LACUNAE

MATRIX

ELASTIC FIBRES

ANAND'S ATLAS OF HISTOLOGY



ELASTIC CARTILAGE

POINTS FOR IDENTIFICATION

1. CHONDROCYTES ARE PRESENT IN LACUNAE
2. MATRIX IS MADE OF ELASTIC FIBRES PREDOMINANTLY
3. PERICHONDRIUM IS PRESENT

COMPACT BONE – LONGITUDINAL SECTION



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VOLKMAN'S CANAL

HAVERSIAN CANALS

OSTEONS



COMPACT BONE - LONGITUDINAL SECTION

POINTS FOR IDENTIFICATION

1. OSTEONS ARE SEEN ARRANGED IN
COLUMNS

2. VOLKMAN'S CANALS CONNECT
HAVERSIAN CANALS WITH THE PERIOSTEUM

COMPACT BONE – TRANSVERSE SECTION

INTERSTITIAL LAMELLAE

CONCENTRIC LAMELLAE



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OSTEOCYTE

HAVERSIAN CANAL

CONCENTRIC LAMELLAE



ANAND'S ATLAS OF HISTOLOGY

COMPACT BONE – TRANSVERSE SECTION

POINTS FOR IDENTIFICATION

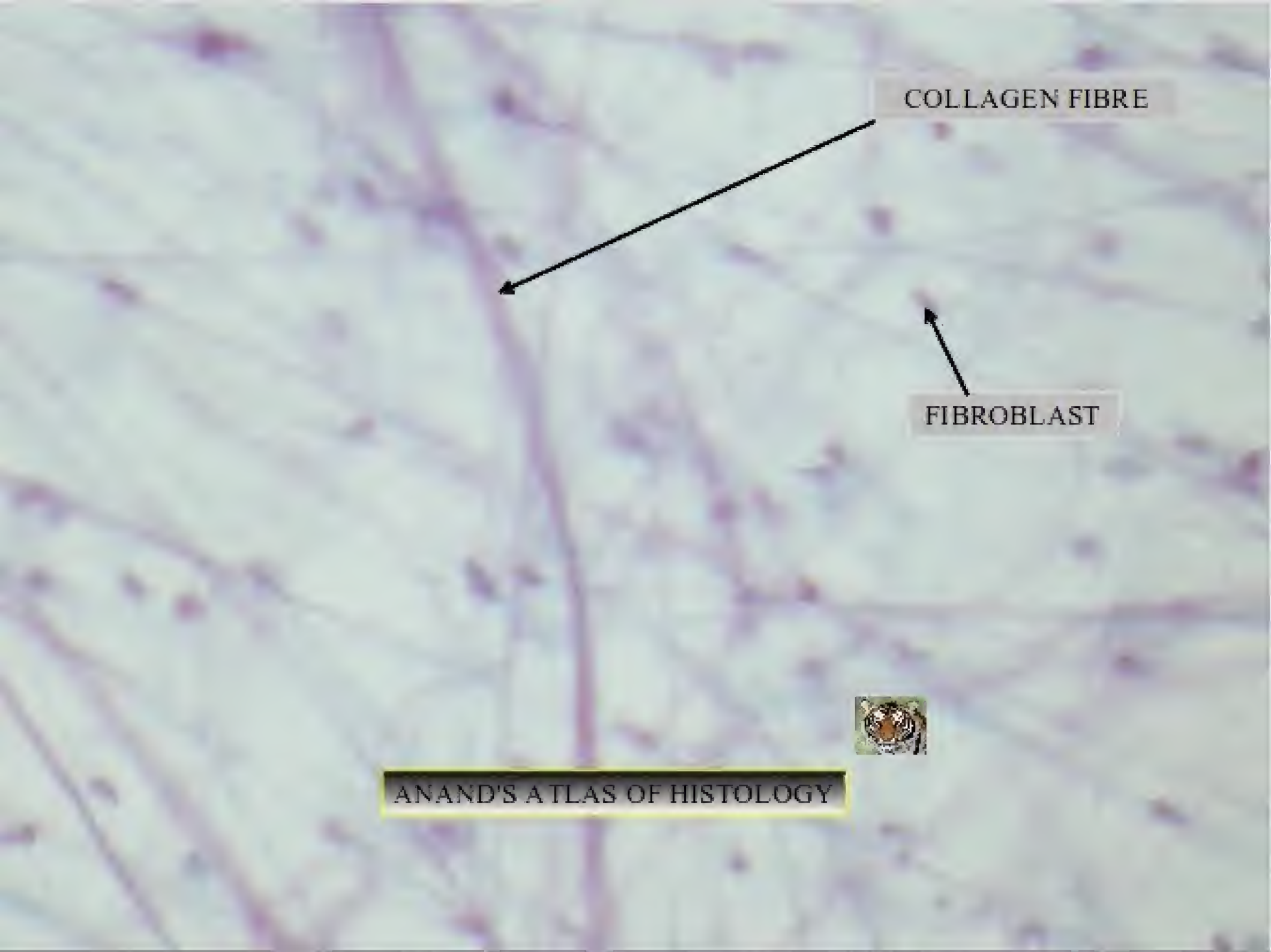
1. CONCENTRIC LAMELLAR ARRANGEMENT
OF OSTEONS
2. INTERSTITIAL LAMELLAE IS SEEN
3. PRESENCE OF HAVERSIAN CANAL

LOOSE AREOLAR TISSUE

COLLAGEN FIBRE



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A light micrograph of a tissue section stained with hematoxylin and eosin (H&E). The image shows a dense network of pink-stained collagen fibers. Scattered throughout the tissue are small, dark-stained nuclei of fibroblasts. Two black arrows point from text labels to specific structures: one points to a thick collagen fiber, and the other points to a fibroblast nucleus.

COLLAGEN FIBRE

FIBROBLAST



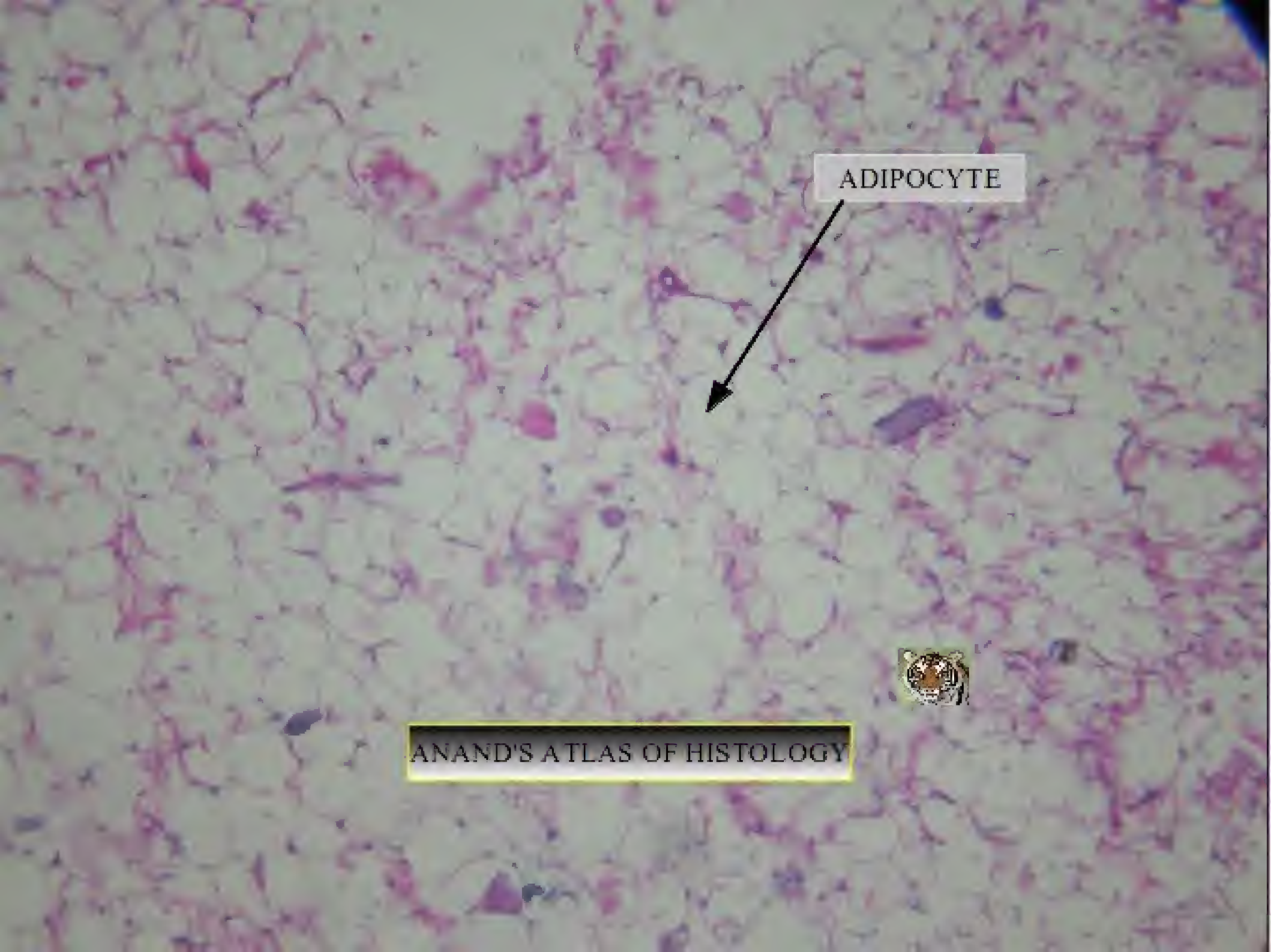
ANAND'S ATLAS OF HISTOLOGY

LOOSE AREOLAR TISSUE

POINTS FOR IDENTIFICATION


1. LOOSELY ARRANGED COLLAGEN FIBRES ARE SEEN
2. FIBROBLASTS ARE SEEN

ADIPOSE TISSUE



ADIPOCYTE

A black arrow points from the text 'ADIPOCYTE' to a single adipocyte in the center of the image.



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NUCLEUS IS PUSHED TO THE PERIPHERY

ADIPOCYTE

SIGNET RING APPEARANCE



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ADIPOSE TISSUE

POINTS FOR IDENTIFICATION

1. ADIPOCYTES ARE SEEN
2. NUCLEUS OF THE ADIPOCYTE IS PUSHED TO THE PERIPHERY
3. CYTOPLASM APPEARS AS A PINK RIM

THICK SKIN

KERATIN LAYER

EPIDERMIS

DERMIS

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STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

EPIDERMAL PAPILLAE

DERMAL PAPILLAE



THICK SKIN

POINTS FOR IDENTIFICATION

1. LINED BY STRATIFIED SQUAMOUS EPITHELIUM
2. PRESENCE OF KERATIN LAYER
3. EPIDERMAL PROJECTIONS INTO DERMIS ARE
EPIDERMAL PAPILLAE
4. DERMAL PROJECTIONS INTO EPIDERMIS ARE
DERMAL PAPILLAE

THIN SKIN

STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

HAIR FOLLICLE

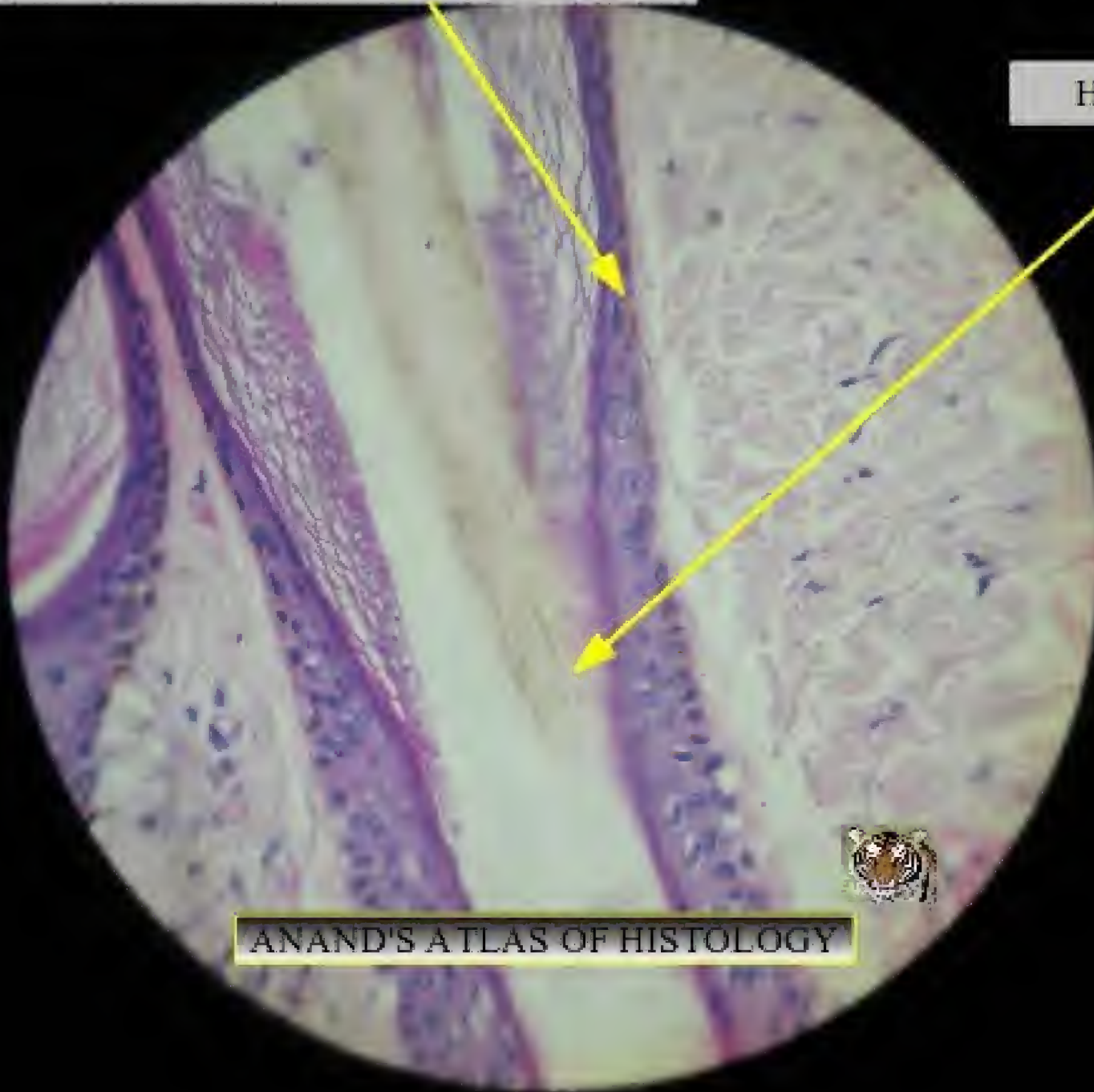
KERATIN LAYER



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STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

HAIR ROOT



ANAND'S ATLAS OF HISTOLOGY

THIN SKIN

POINTS FOR IDENTIFICATION

1. PRESENCE OF HAIR FOLLICLE
2. LINED BY STRATIFIED SQUAMOUS KERATINISED EPITHELIUM
3. PRESENCE OF DERMIS AND EPIDERMIS

PERIPHERAL NERVE – LONGITUDINAL SECTION

CUT SECTIONS OF AXONS



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NODES OF RANVIER

MYELIN SHEATH



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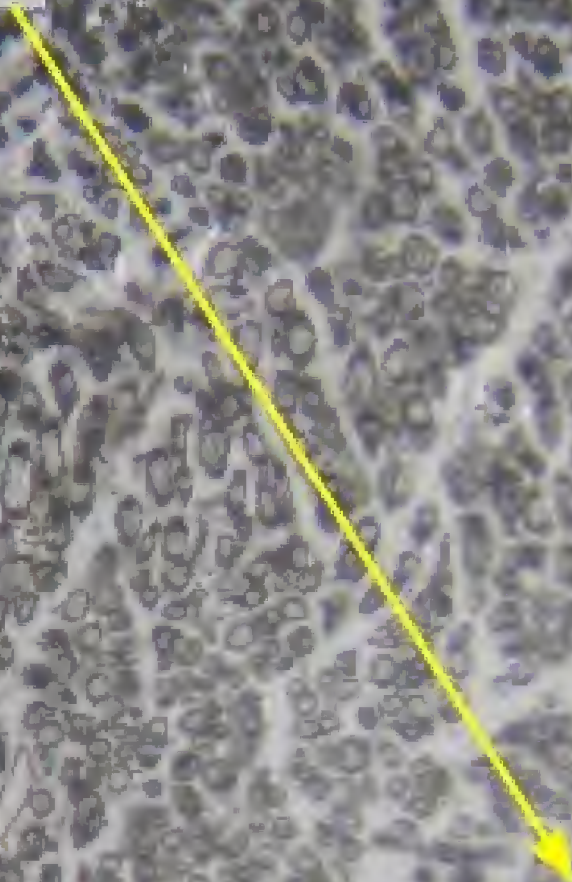
PERIPHERAL NERVE – LONGITUDINAL SECTION

POINTS FOR IDENTIFICATION

1. CUT SECTIONS OF AXONS ARE SEEN
2. AXONS ARE LINED BY MYELIN SHEATH
3. NODES OF RANVIER ARE SEEN

PERIPHERAL NERVE – TRANSVERSE SECTION

NERVE BUNDLES



NERVE BUNDLES

PERINEURIUM

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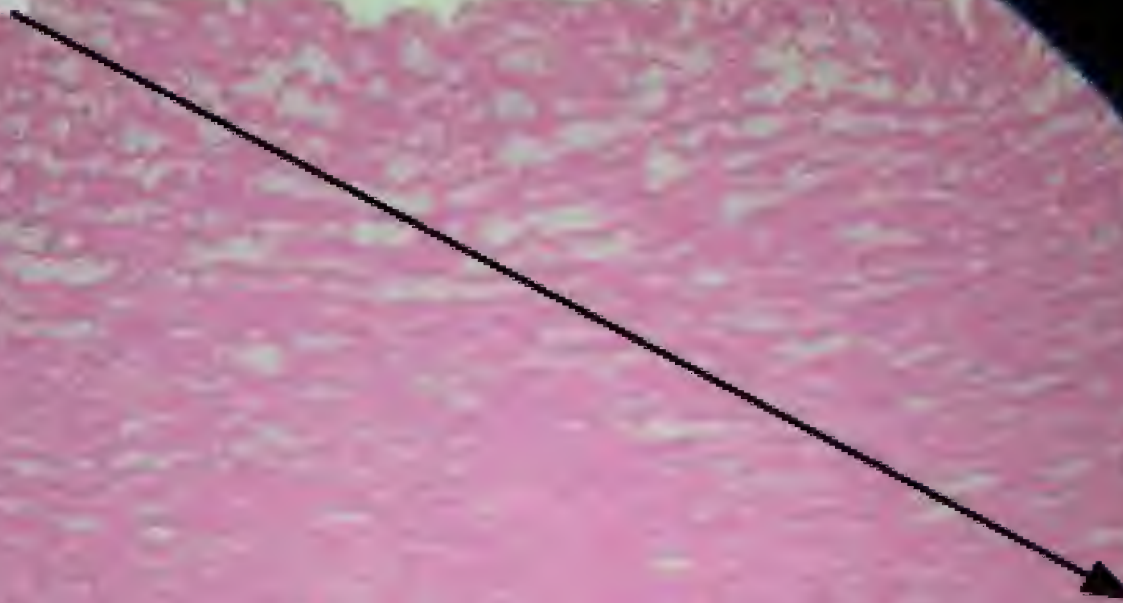
PERIPHERAL NERVE – TRANSVERSE SECTION

POINTS FOR IDENTIFICATION

1. CUT SECTION OF NERVE FIBRE BUNDLES ARE SEEN
2. PERINEURIUM IS SEEN

ELASTIC ARTERY

ELASTIC FIBRES



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TUNICA INTIMA



TUNICA MEDIA



ANAND'S ATLAS OF HISTOLOGY

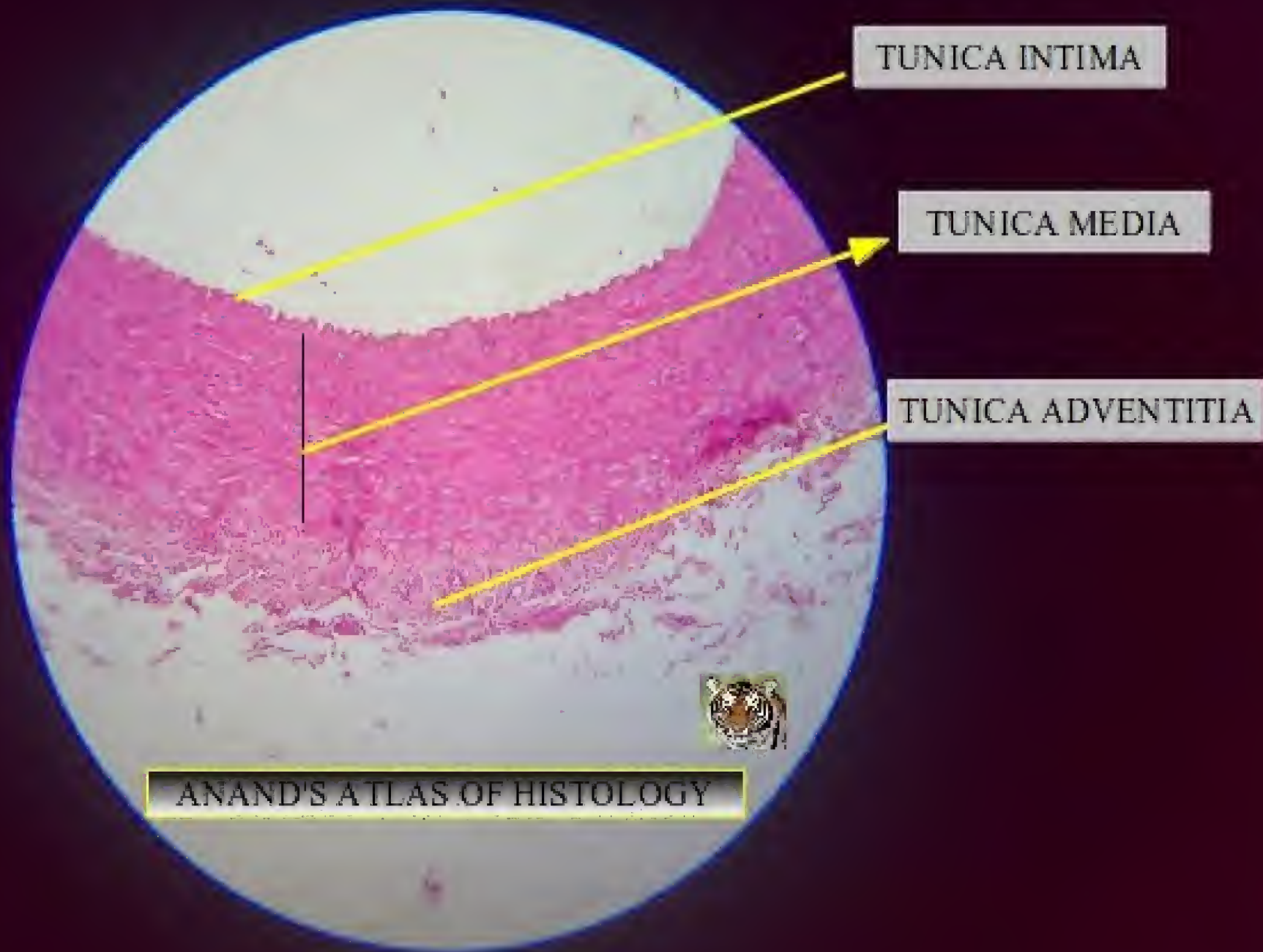


ELASTIC ARTERY

POINTS FOR IDENTIFICATION

1. CONSISTS OF THREE LAYERS, TUNICA INTIMA, TUNICA MEDIA AND TUNICA ADVENTITIA FROM INSIDE TO OUTSIDE
2. TUNICA MEDIA IS LARGE
3. TUNICA MEDIA PREDOMINANTLY CONSISTS OF ELASTIC FIBRES

MUSCULAR ARTERY



TUNICA INTIMA

TUNICA MEDIA
WITH
SMOOTH MUSCLE
FIBRES



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MUSCULAR ARTERY

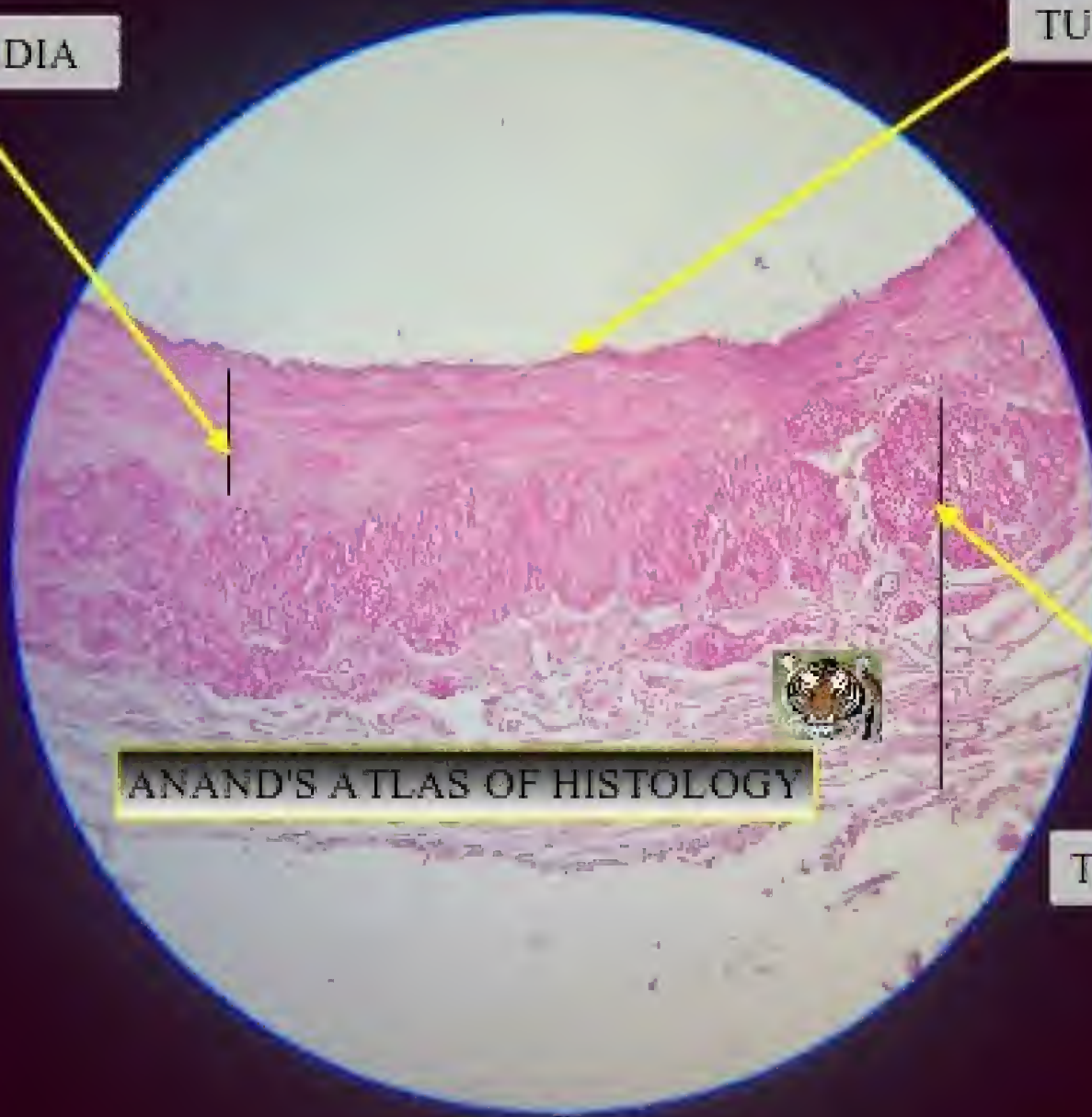
POINTS FOR IDENTIFICATION

1. CONSISTS OF THREE LAYERS, TUNICA INTIMA, TUNICA MEDIA AND TUNICA ADVENTITIA FROM INSIDE TO OUTSIDE
2. TUNICA MEDIA IS LARGE
3. TUNICA MEDIA PREDOMINANTLY CONSISTS OF SMOOTH MUSCLE FIBRES

LARGE VEIN

TUNICA MEDIA

TUNICA INTIMA

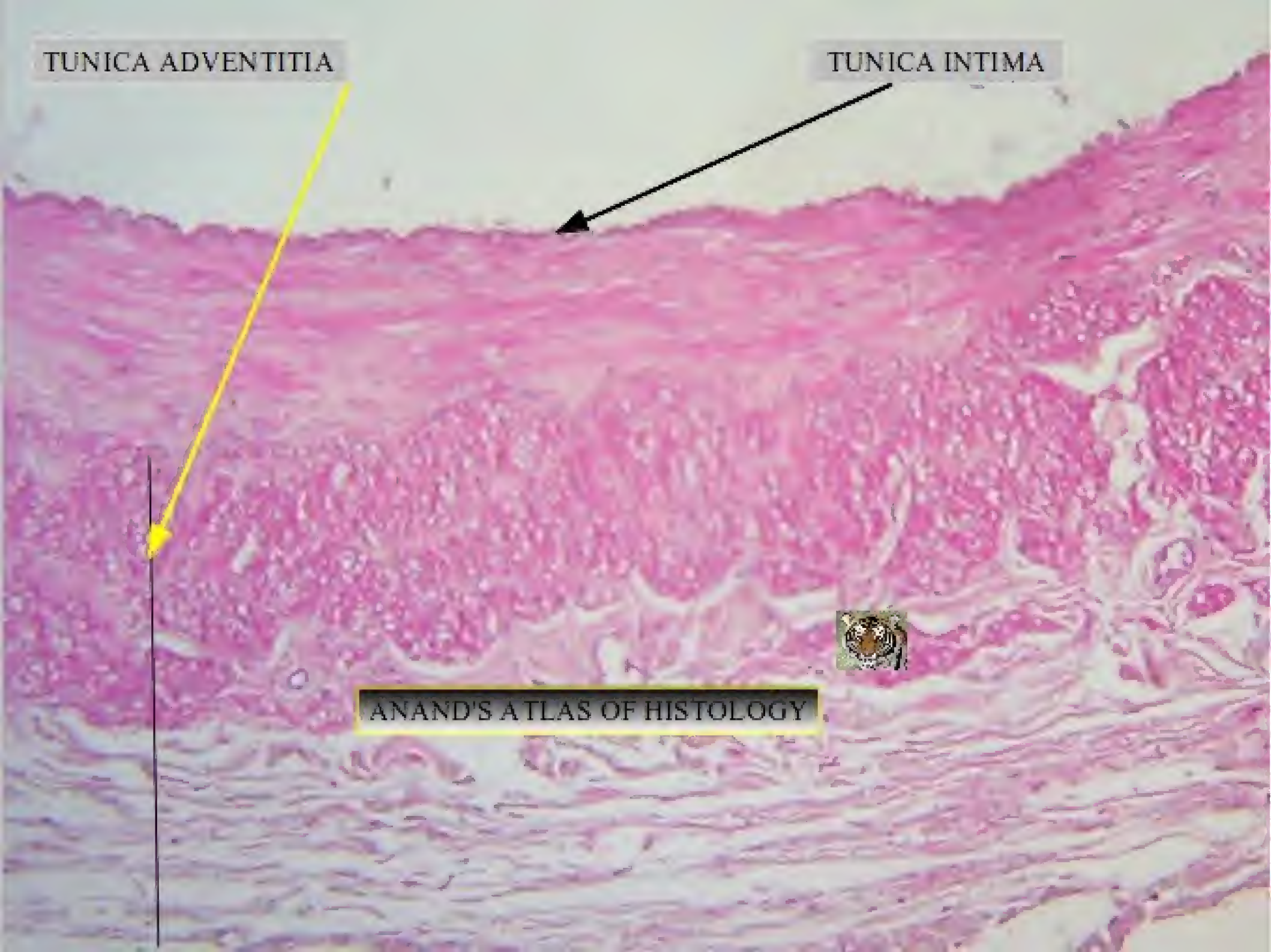


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TUNICA ADVENTITIA

TUNICA ADVENTITIA

TUNICA INTIMA



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LARGE VEIN

POINTS FOR IDENTIFICATION

1. CONSISTS OF THREE LAYERS, TUNICA INTIMA, TUNICA MEDIA AND TUNICA ADVENTITIA FROM INSIDE TO OUTSIDE
2. TUNICA ADVENTITIA IS LARGE
3. TUNICA ADVENTITIA PREDOMINANTLY CONSISTS OF SMOOTH MUSCLE FIBRES AND COLLAGEN FIBRES

SECTION – 2

SYSTEMIC HISTOLOGY

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LIST OF SYSTEMS

LYMPHATIC SYSTEM

DIGESTIVE SYSTEM

RESPIRATORY SYSTEM

EXCRETORY SYSTEM

REPRODUCTIVE SYSTEM – MALE

REPRODUCTIVE SYSTEM – FEMALE

LIST OF SYSTEMS

ENDOCRINE SYSTEM
SPECIAL SENSORY ORGANS
CENTRAL NERVOUS SYTEM

LYMPHATIC SYSTEM

LIST OF COLOUR PLATES

LYMPH NODE

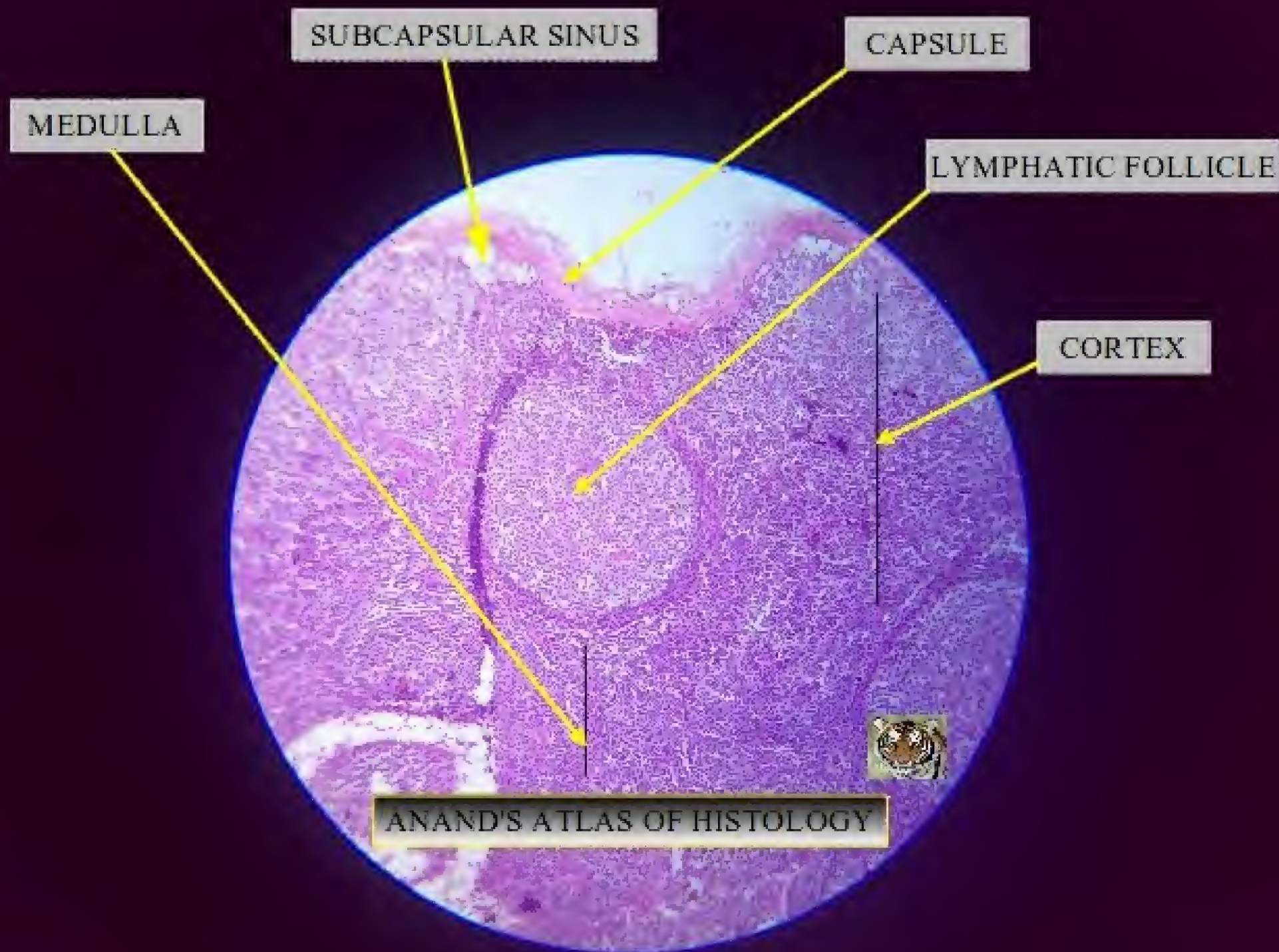
SPLEEN

TONSIL

THYMUS

LYMPH NODE

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MEDULLARY SINUS

GERMINAL CENTRE

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LYMPH NODE

POINTS FOR IDENTIFICATION

- 1.PRESENCE OF CORTEX AND MEDULLA**
- 2.PRESENCE OF LYMPHATIC FOLLICLES**
- 3.MEDULLA IS MADE UP OF LYMPHOCYTES
ARRANGED AS MEDULLARY CORDS AND
SEPARATED BY MEDULLARY SINUSES**

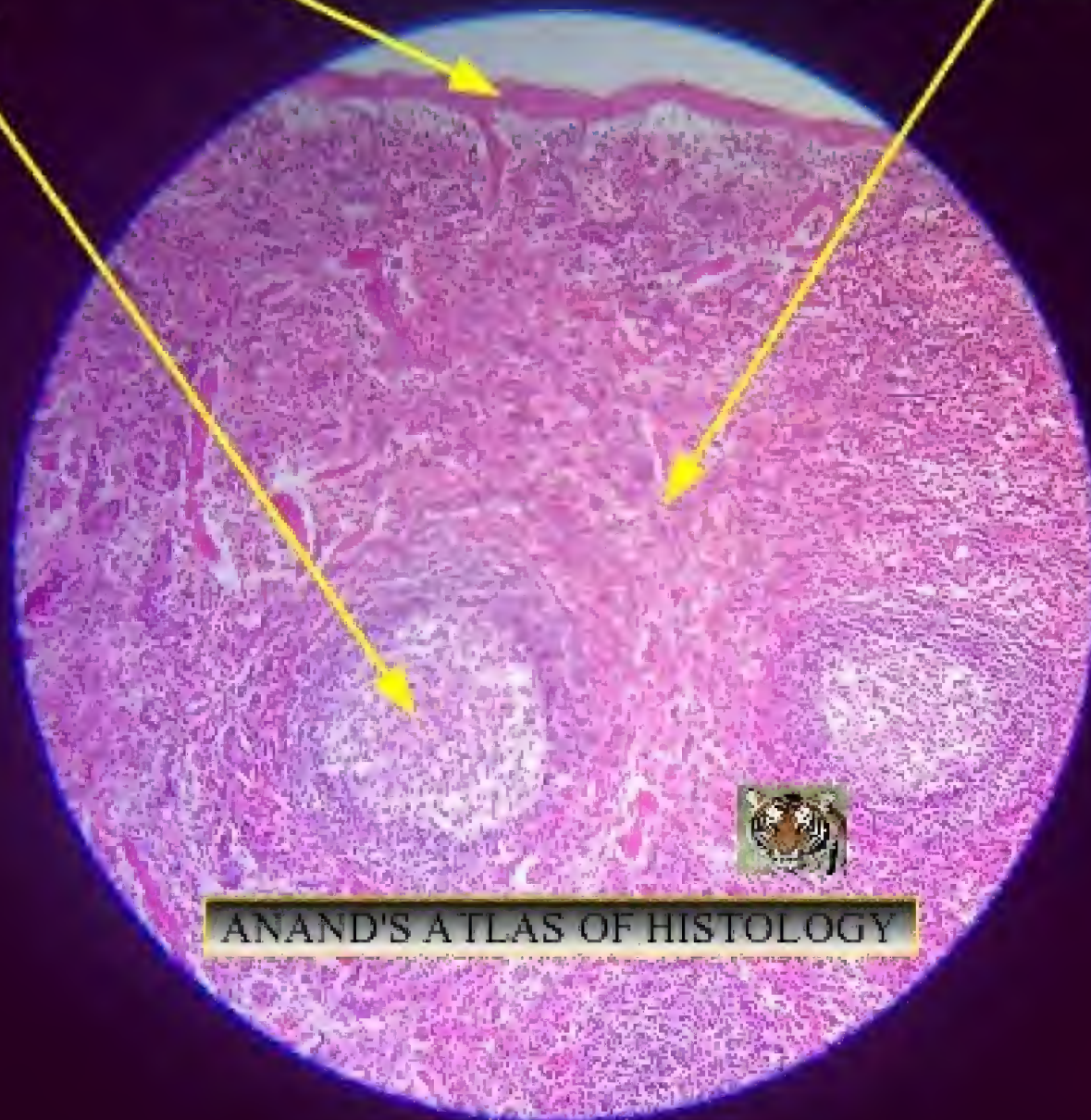
SPLEEN

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OUTER CAPSULE

RED PULP

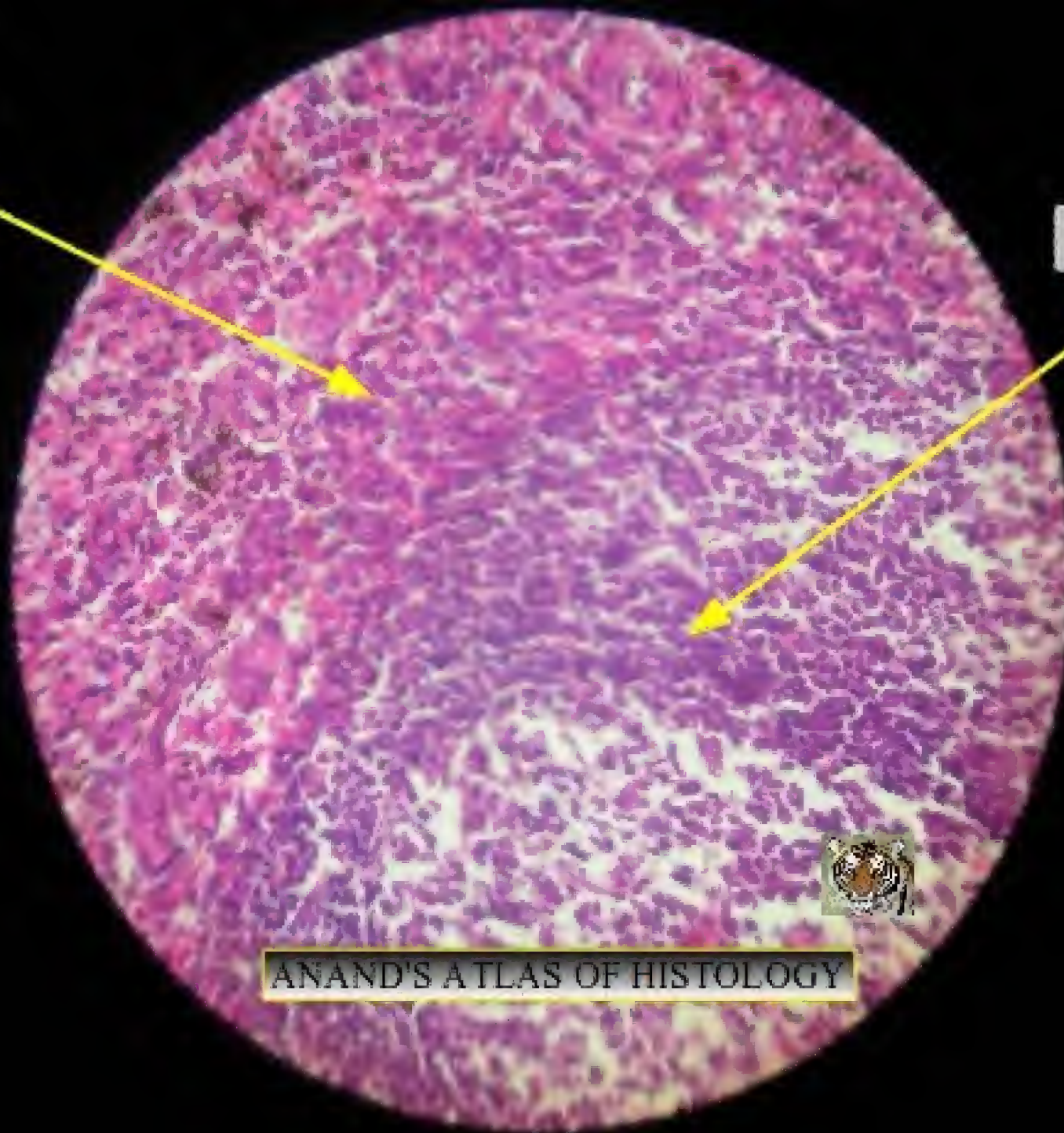
WHITE PULP



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RED PULP

WHITE PULP



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SPLEEN

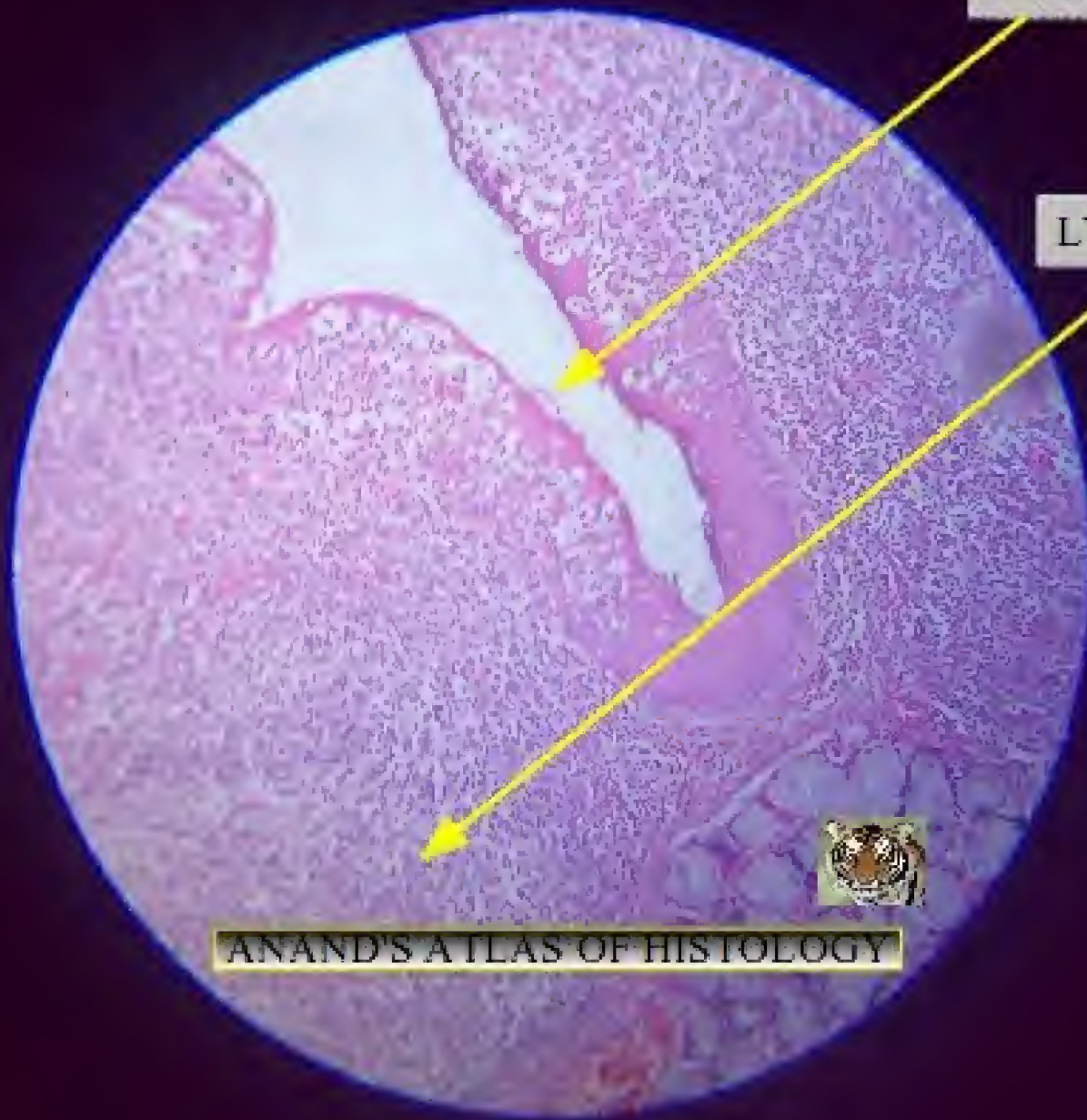
POINTS FOR IDENTIFICATION

1. OUTER CAPSULE SENDS IN THICK SEPTAE
2. PRESENCE OF RED PULP
3. PRESENCE OF WHITE PULP

TONSIL

TONSILLAR CRYPT

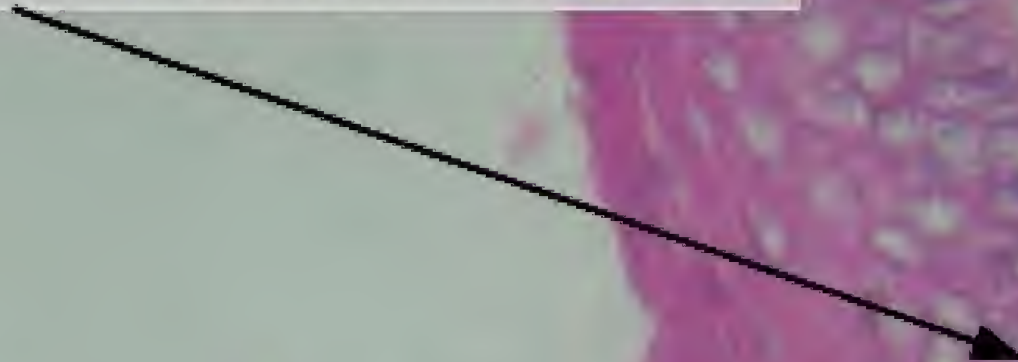
LYMPHATIC FOLLICLE



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STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM



TONSIL

POINTS FOR IDENTIFICATION

1. SECTION IS OF PALATINE TONSIL
2. IT IS LINED BY STRATIFIED SQUAMOUS
NON KERATINISED EPITHELIUM
3. PRESENCE OF LYMPHATIC FOLLICLE
4. PRESENCE OF TONSILLAR CRYPT

THYMUS

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THYMIC LOBE

CORTEX

MEDULLA



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LYMPHOCYTES

HASSAL'S CORPUSCLES



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THYMUS

POINTS FOR IDENTIFICATION

1. THYMUS IS DIVIDED INTO LOBES
2. EACH LOBE HAS A CORTEX AND A MEDULLA
3. CORTEX IS PACKED WITH LYMPHOCYTES
4. MEDULLA CONTAINS CORPUSCLES OF HASSAL

DIGESTIVE SYSTEM

LIST OF COLOUR PLATES

TONGUE – FILIFORM PAPILLAE

TONGUE – FUNGIFORM PAPILLAE

TONGUE – CIRCUMVALLATE PAPILLAE

SEROUS SALIVARY GLAND

MUCOUS SALIVARY GLAND

MIXED SALIVARY GLAND

DIGESTIVE SYSTEM

LIST OF COLOUR PLATES

TONGUE – FILIFORM PAPILLAE

TONGUE – FUNGIFORM PAPILLAE

TONGUE – CIRCUMVALLATE PAPILLAE

SEROUS SALIVARY GLAND

MUCOUS SALIVARY GLAND

MIXED SALIVARY GLAND

DIGESTIVE SYSTEM

LIST OF COLOUR PLATES

OESOPHAGUS

STOMACH – FUNDUS

STOMACH – PYLORUS

DUODENUM

JEJUNUM

ILEUM

DIGESTIVE SYSTEM

LIST OF COLOUR PLATES

VERMIFORM APPENDIX
LARGE INTESTINE (COLON)
LIVER
GALL BLADDER
PANCREAS

TONGUE – FILIFORM PAPILLAE

STRATIFIED SQUAMOUS KERATINISED EPITHELIUM



SHARP CONICAL TIP

FILIFORM PAPILLA

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TIP IS KERATINISED



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TONGUE – FILIFORM PAPILLAE

POINTS FOR IDENTIFICATION

1. LINED BY STRATIFIED SQUAMOUS KERATINISED EPITHELIUM
2. TIPS ARE KERATINISED
3. SHARP CONICAL APPEARANCE

TONGUE – FUNGIFORM PAPILLA

STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

FUNGIFORM PAPILLA

FILIFORM PAPILLA



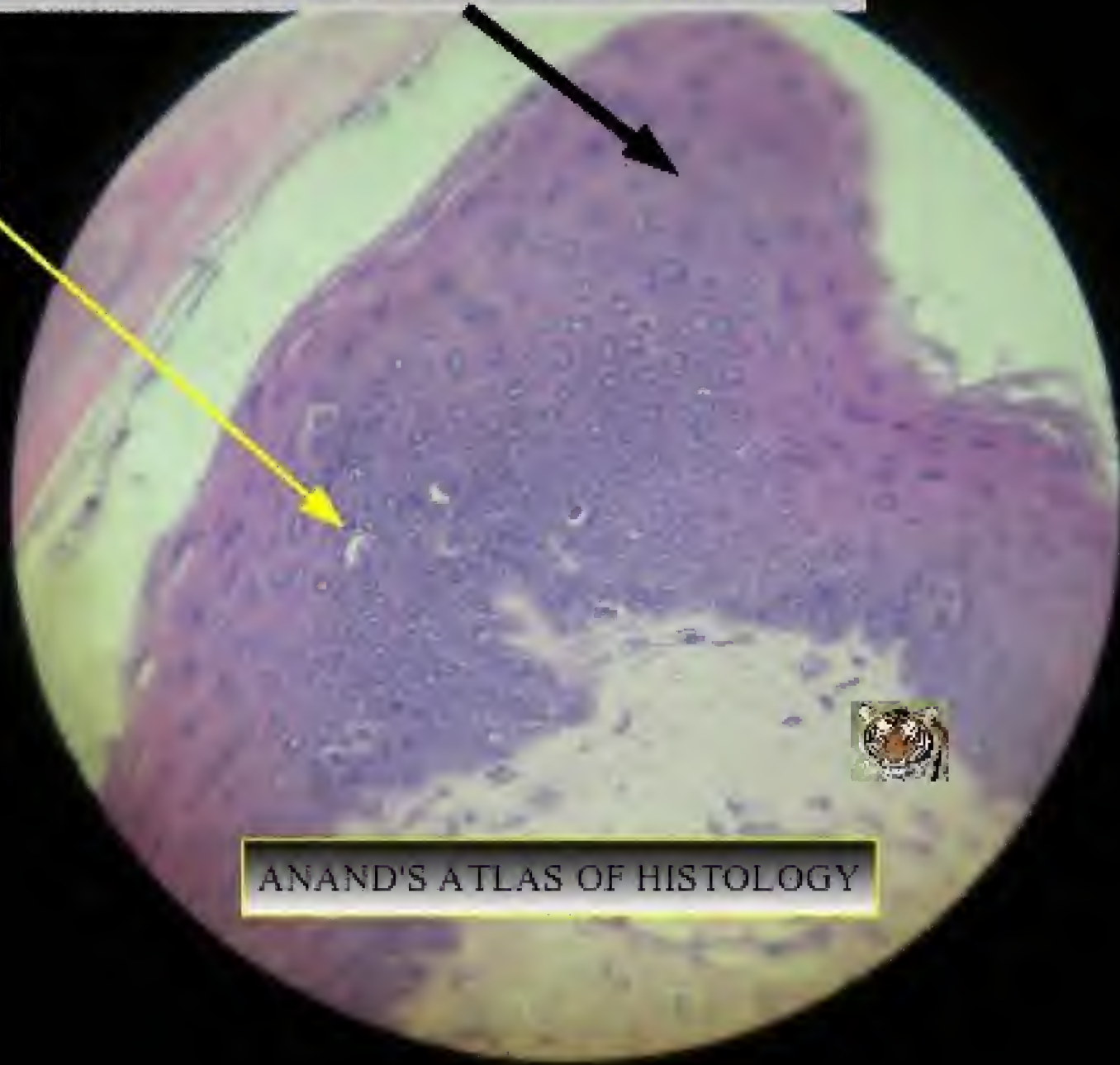
CIRCUMVALLATE PAPILLA

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STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

TASTE BUD



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TONGUE – FUNGIFORM PAPILLAE

POINTS FOR IDENTIFICATION

1. LINED BY STRATIFIED SQUAMOUS
NON KERATINISED EPITHELIUM
2. PRESENCE OF TASTE BUDS

STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

TASTE BUD



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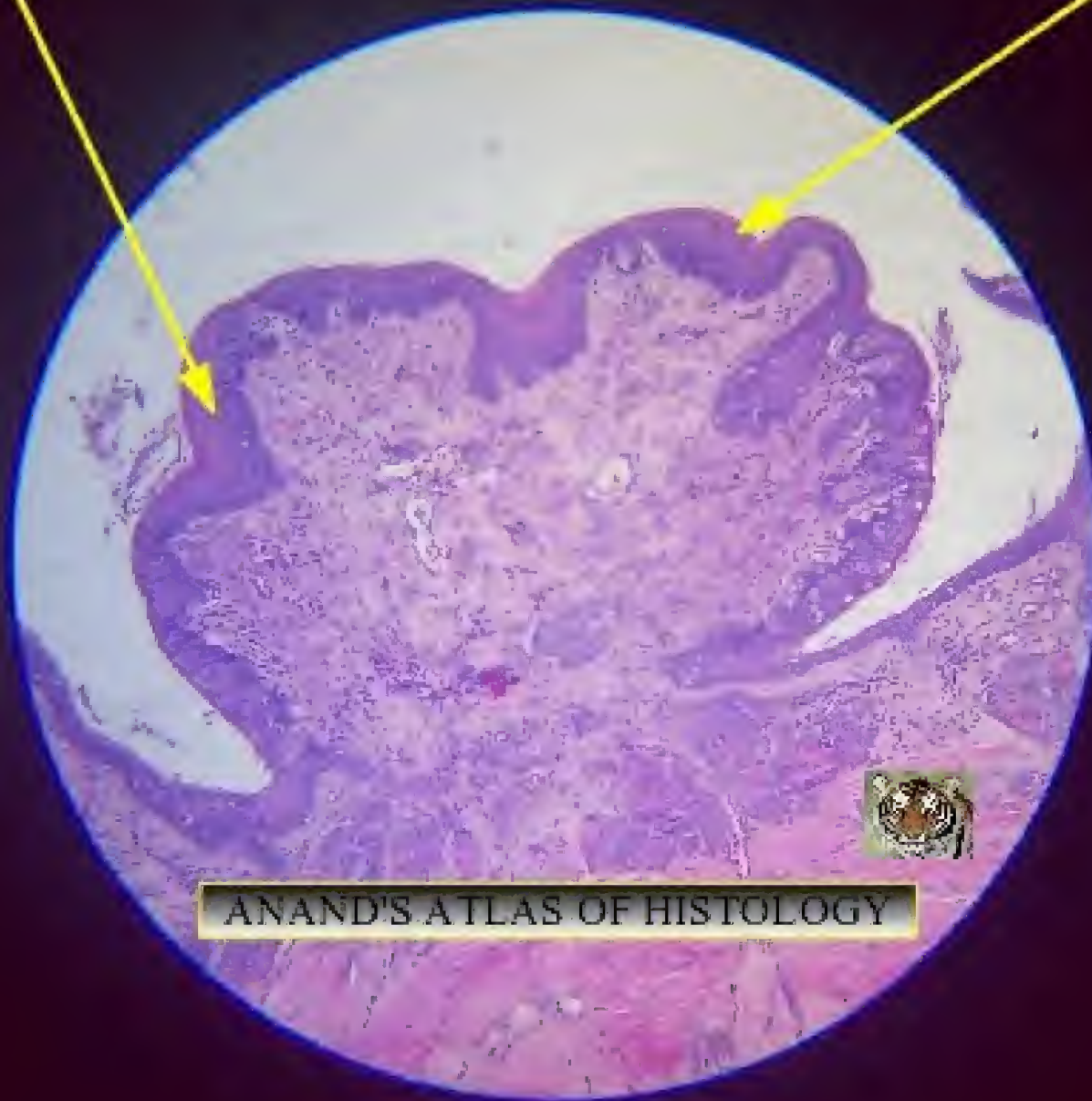


FUNGIFORM PAPILLAE IS USUALLY NON KERATINISED STRATIFIED SQUAMOUS EPITHELIUM. HOWEVER IN SOME CASES THE EPITHELIUM CAN BE KERATINISED AS SHOWN IN THE PICTURE HOWEVER TO DIFFERENTIATE IT FROM FILIFORM PAPILLAE THERE WOULD BE TASTE BUDS

TONGUE - CIRCUMVALLATE PAPILLAE

STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

LARGEST OF ALL
TONGUE PAPILLAE



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TASTE BUD



STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM



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TONGUE – CIRCUMVALLATE PAPILLAE

POINTS FOR IDENTIFICATION

1. LINED BY STRATIFIED SQUAMOUS NON
KERATINISED EPITHELIUM
2. PRESENCE OF TASTE BUDS
3. LARGEST OF ALL TONGUE PAPILLAE

SEROUS SALIVARY GLAND

BLOOD VESSEL

DUCT

SEPTA

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SEROUS ACINI

DUCT

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SEROUS SALIVARY GLAND

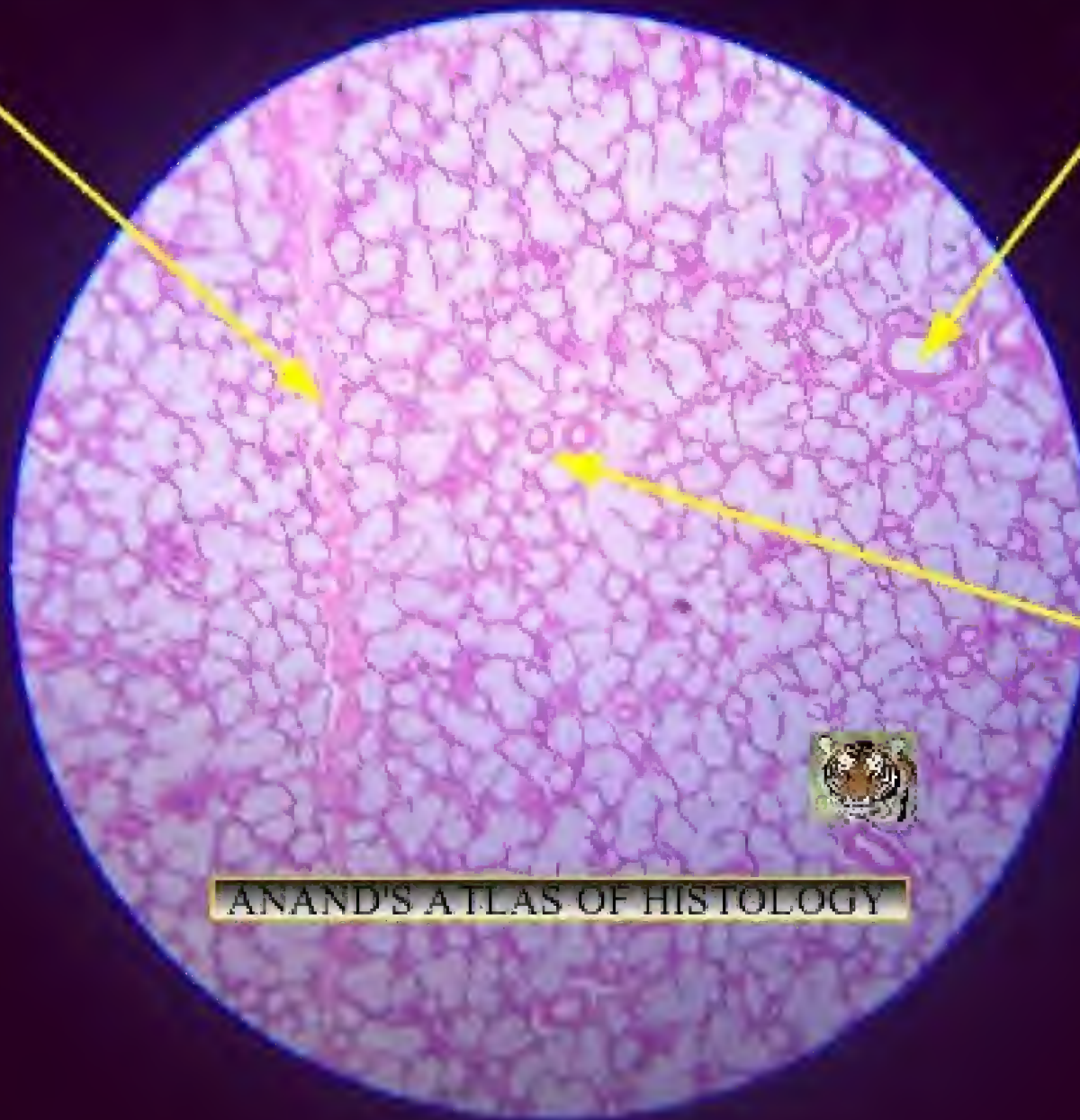
POINTS FOR IDENTIFICATION

1. SEROUS ACINI ARE PREDOMINANT
2. INTRA LOBULAR DUCTS ARE PRESENT
3. SEROUS CELLS ARE PYRAMIDAL IN SHAPE WITH A BASAL NUCLEUS

MUCOUS SALIVARY GLAND

SEPTA

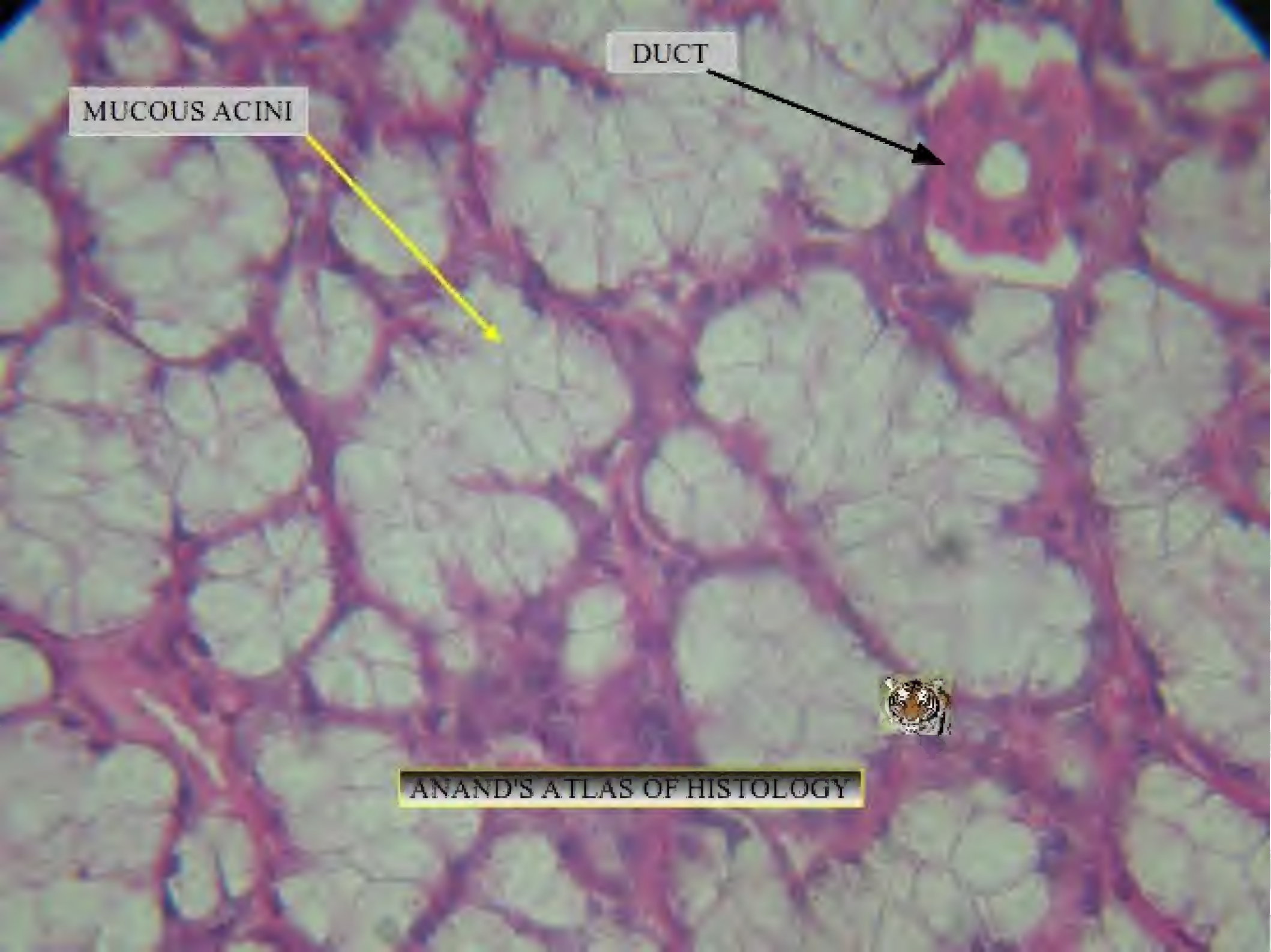
BLOOD VESSEL



DUCT



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DUCT

MUCOUS ACINI



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MUCOUS SALIVARY GLAND

POINTS FOR IDENTIFICATION

1. MUCOUS ACINI ARE
PREDOMINANT
2. INTRALOBULAR DUCTS ARE SEEN
3. MUCOUS ACINI ARE PALE STAINED
WITH FLAT BASAL NUCLEUS

MIXED SALIVARY GLAND

SEPTA

MUCOUS ACINI

SEROUS ACINI



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SEROUS DEMILUNES

DUCT



MIXED SALIVARY GLAND

POINTS FOR IDENTIFICATION

1. BOTH SEROUS AND MUCOUS ACINI ARE PRESENT
2. INTRALOBULAR DUCTS ARE SEEN
3. SEROUS DEMILUNES ARE SEEN

OESOPHAGUS

STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

OESOPHAGEAL
GLANDS

SKELETAL MUSCLE



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STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

SKELETAL MUSCLE



ANAND'S ATLAS OF HISTOLOGY

OESOPHAGUS

POINTS FOR IDENTIFICATION

1. LINING EPITHELIUM OF THORACIC PART OF OESOPHAGUS IS STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM
2. SUBMUCOSA CONTAINS OESOPHAGEAL GLANDS (BOTH SEROUS AND MUCOUS GLANDS)
3. MUSCULAR COAT IS MADE OF SKELETAL MUSCLE IN THE THORACIC PART

STOMACH - FUNDUS

GASTRIC GLANDS

MUCOSA

SUBMUCOSA

MUSCULAR COAT

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GASTRIC PIT

SIMPLE COLUMNAR EPITHELIUM

GASTRIC GLANDS



ANAND'S ATLAS OF HISTOLOGY

STOMACH – FUNDUS

POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS AND LINED BY SIMPLE COLUMNAR EPITHELIUM
2. GASTRIC GLANDS ARE LONG WHEREAS THE GASTRIC PITS ARE SHALLOW
3. GASTRIC GLANDS OPEN INTO THE GASTRIC PITS

STOMACH - PYLORUS

PYLORIC GLANDS

GASTRIC FOLDS

SUBMUCOSA

ANAND'S ATLAS OF HISTOLOGY



PYLORIC GLANDS

GASTRIC PIT

SIMPLE COLUMNAR EPITHELIUM

ANAND'S ATLAS OF HISTOLOGY



STOMACH – PYLORUS

POINTS FOR IDENTIFICATION

1. GASTRIC FOLDS ARE LONG AND NARROW
2. PYLORIC GLANDS ARE SHORTER AND OPEN INTO THE GASTRIC PITS
3. MUCOSA IS LINED BY SIMPLE COLUMNAR EPITHELIUM

DUODENUM

ANAND'S ATLAS OF HISTOLOGY

VILLUS

MUCOSA

MUSCULAR COAT

SUBMUCOSA

ANAND'S ATLAS OF HISTOLOGY



BRUNNER'S GLANDS
IN SUBMUCOSA

MUSCULARIS INTERNA



DUODENUM

POINTS FOR IDENTIFICATION

1. MUCOSAL FOLDS ARE TERMED AS VILLI
2. VILLI ARE LONG AND NUMEROUS
3. BRUNNER'S GLANDS ARE SEEN IN SUBMUCOSA

JEJUNUM

ANAND'S ATLAS OF HISTOLOGY

VILLI

MUCOSA

MUSCULAR COAT

SUBMUCOSA



ANAND'S ATLAS OF HISTOLOGY

GOBLET CELL

MICROVILLI



ANAND'S ATLAS OF HISTOLOGY

JEJUNUM

POINTS FOR IDENTIFICATION

1. MUCOSA CONTAINS NUMEROUS GOBLET CELLS
2. MICROVILLI ARE PRESENT IN THE LINING EPITHELIUM
3. VILLI ARE LONG AND PROMINENT

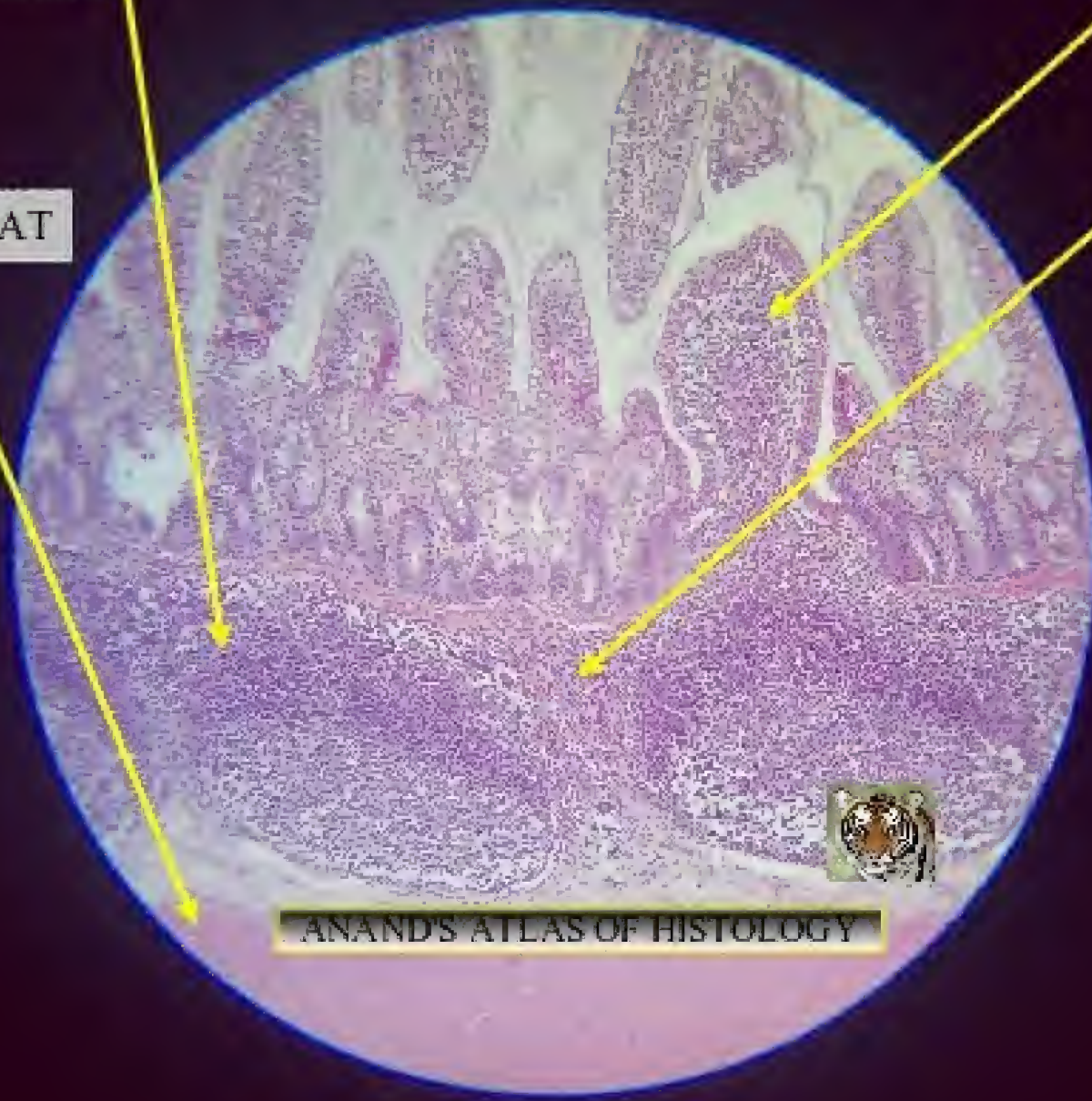
ILEUM

PEYER'S PATCHES

MUCOSA

SUBMUCOSA

MUSCULAR COAT

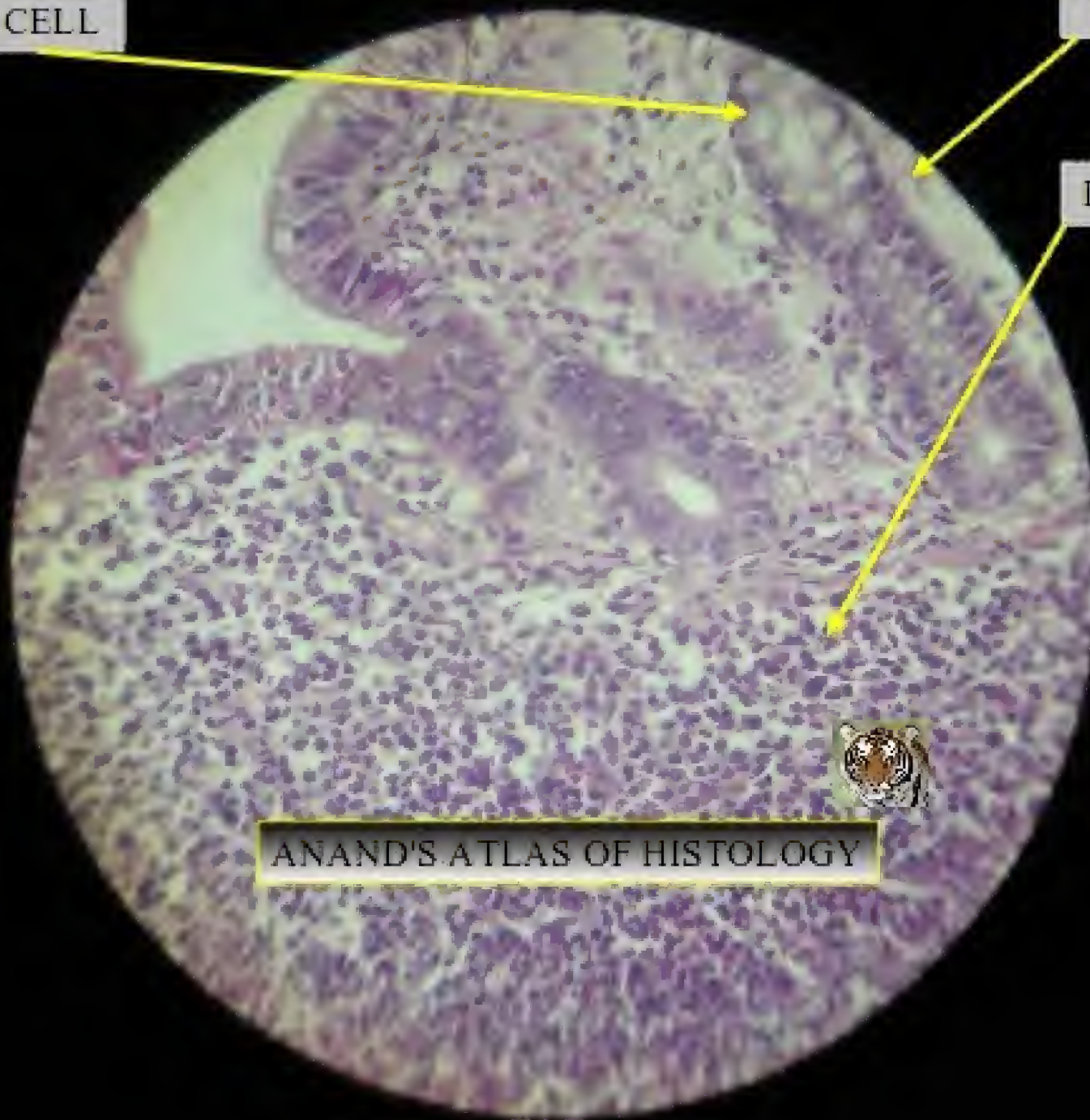


ANAND'S ATLAS OF HISTOLOGY

GOBLET CELL

MUCOSA

LYMPHOCYTE



ANAND'S ATLAS OF HISTOLOGY

ILEUM

POINTS FOR IDENTIFICATION

1. VILLI ARE SHORT AND FEW
2. SUB MUCOSA CONTAINS LYMPHATIC AGGREGATIONS CALLED AS PEYER'S PATCHES

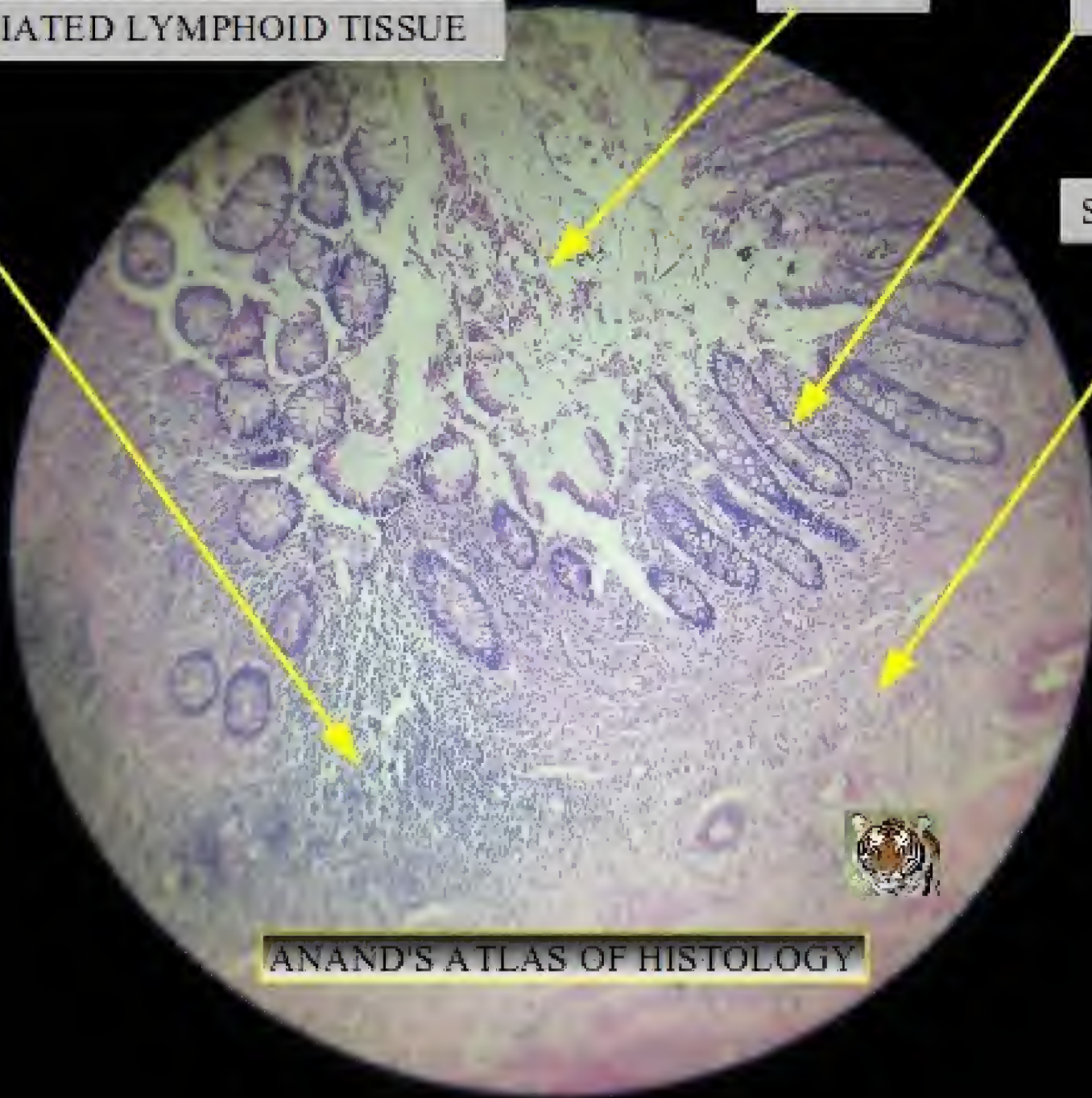
VERMIFORM APPENDIX

GUT ASSOCIATED LYMPHOID TISSUE

LUMEN

MUCOSA

SUB MUCOSA



ANAND'S ATLAS OF HISTOLOGY



GOBLET CELL

MUCOSA

LYMPHOCYTES



ANAND'S ATLAS OF HISTOLOGY

VERMIFORM APPENDIX

POINTS FOR IDENTIFICATION

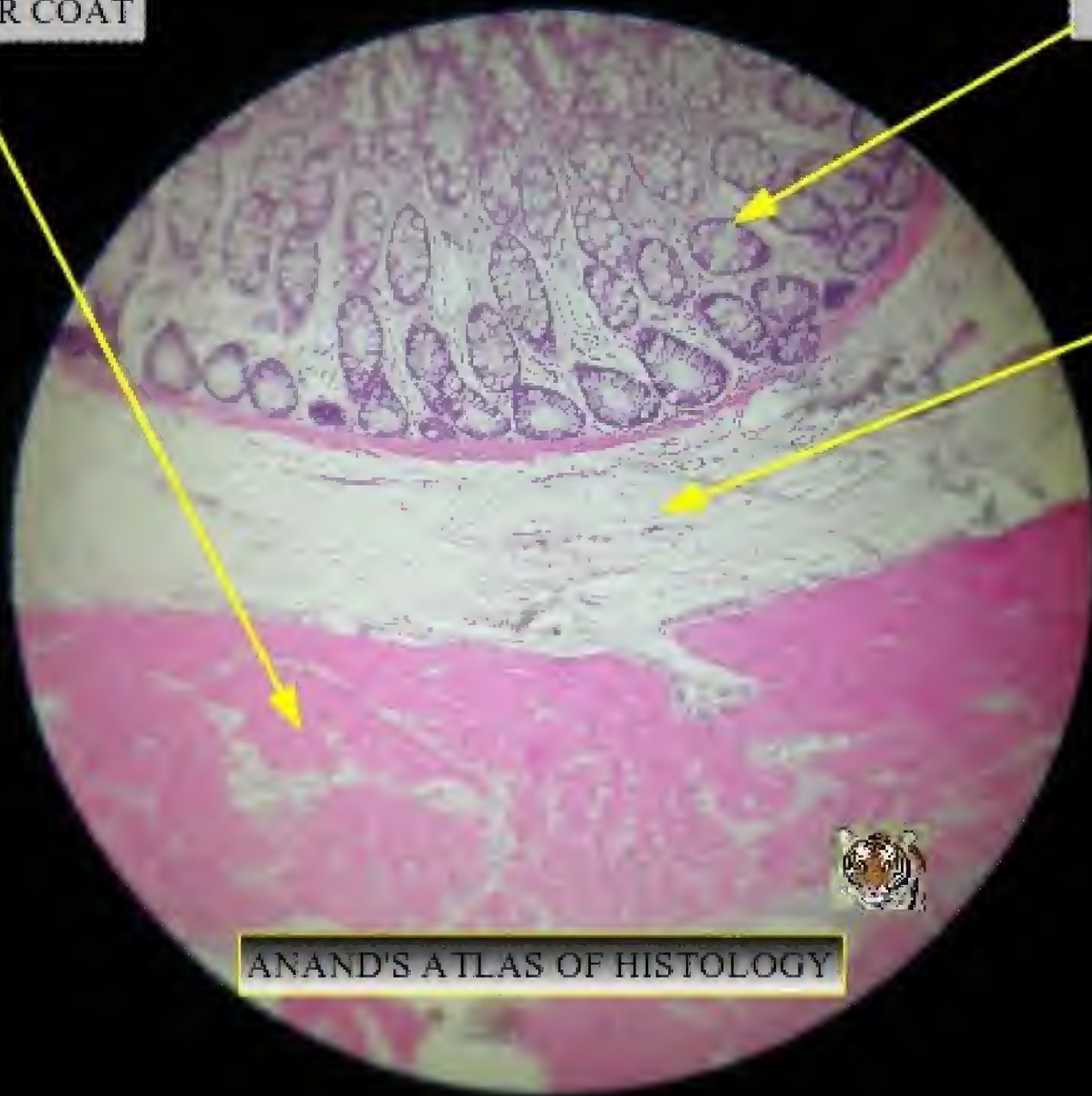
1. MUCOSA IS LINED BY SIMPLE COLUMNAR EPITHELIUM
2. SUBMUCOSA CONTAINS LYMPHOID AGGREGATIONS
3. GOBLET CELLS ARE SEEN

LARGE INTESTINE (COLON)

MUSCULAR COAT

MUCOSA

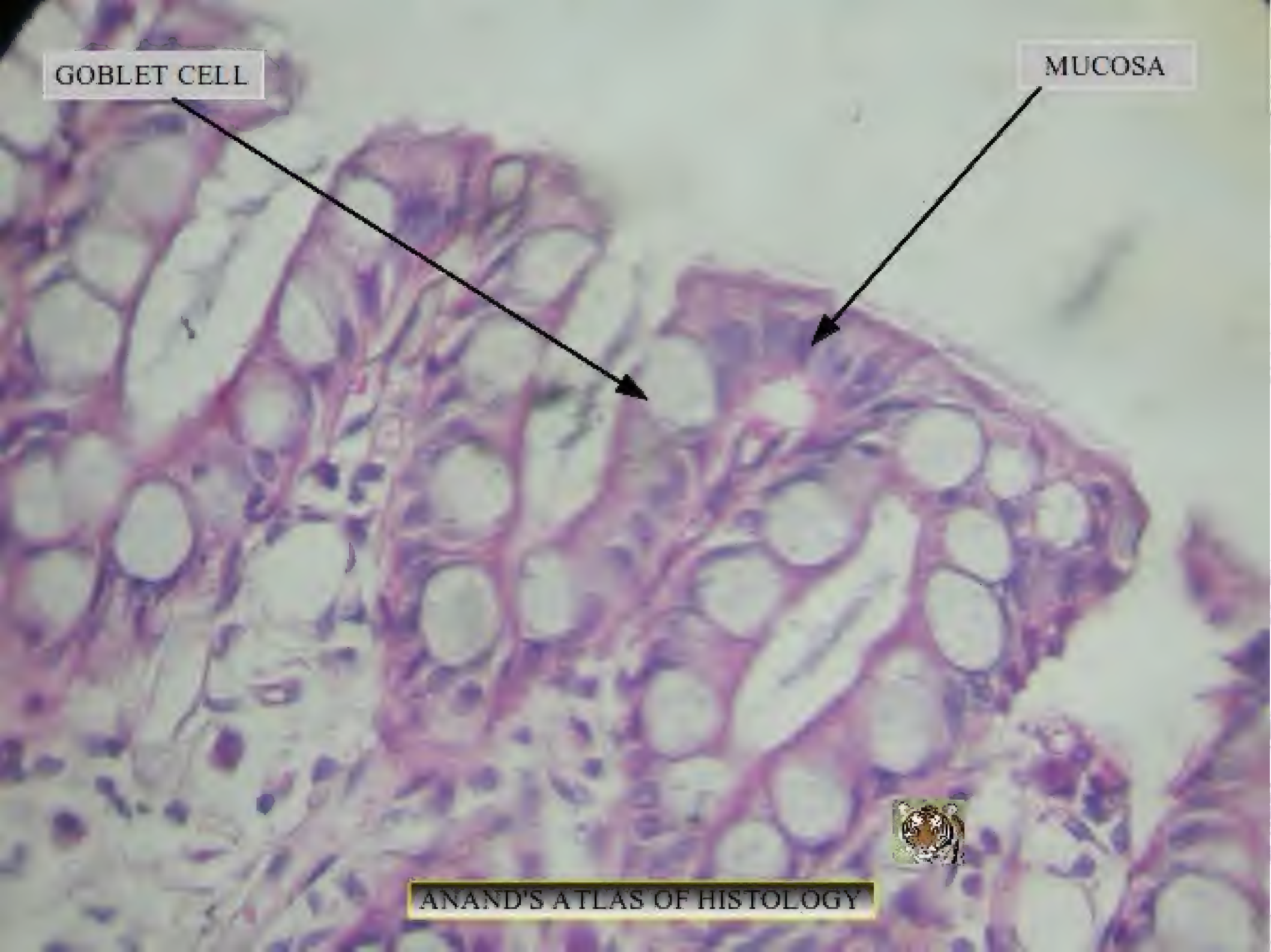
SUB MUCOSA



ANAND'S ATLAS OF HISTOLOGY

GOBLET CELL

MUCOSA



LARGE INTESTINE (COLON)

POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS AND CONTAINS NUMEROUS GOBLET CELLS
2. MUCOSA IS LINED BY SIMPLE COLUMNAR EPITHELIUM
3. MUSCULAR COAT IS THICK AND ARRANGED AS THREE LAYERS

LIVER

CENTRAL VEIN

HEPATOCYTES

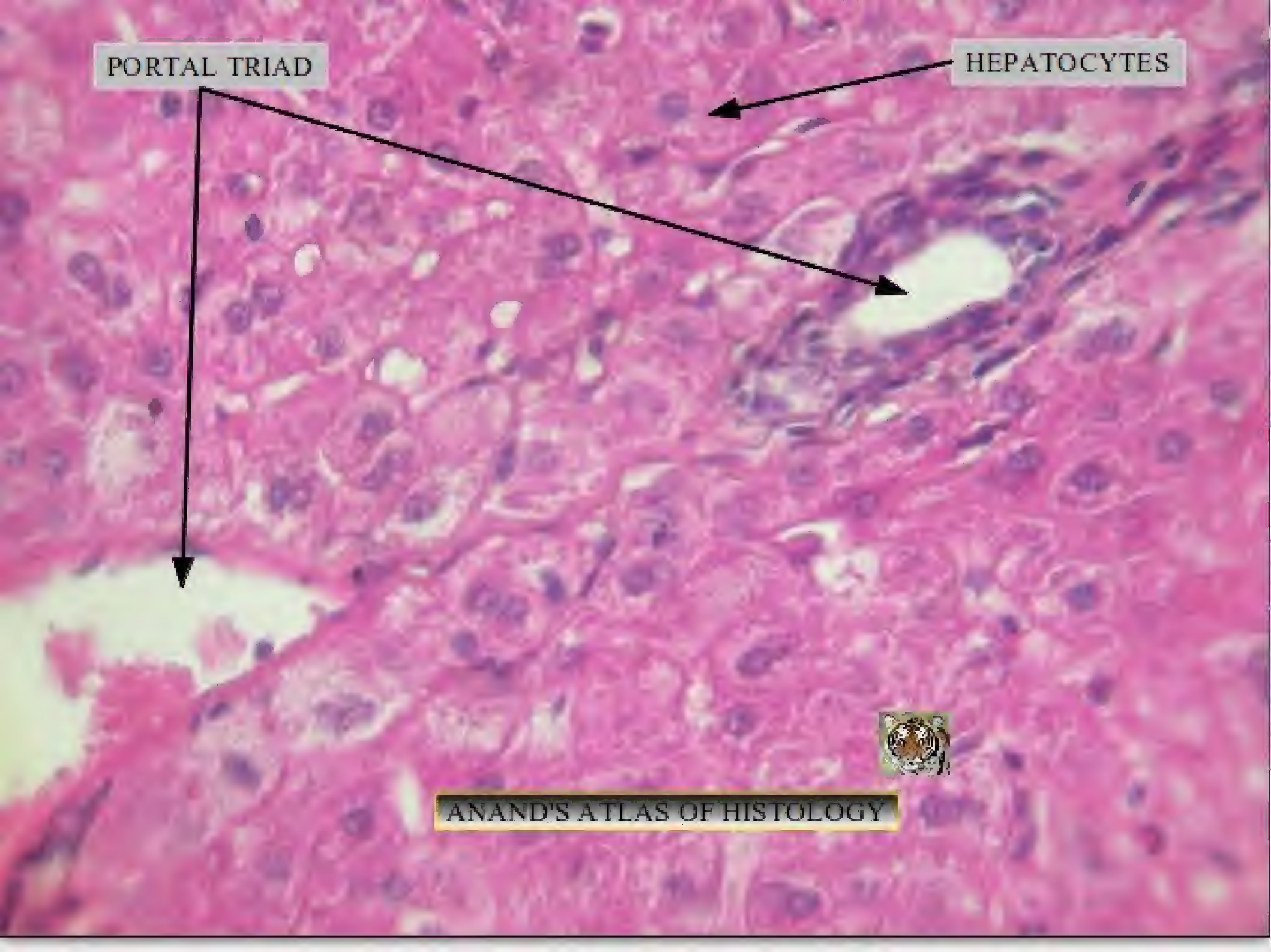
SINUSOID

ANAND'S ATLAS OF HISTOLOGY



PORTAL TRIAD

HEPATOCYTES



LIVER

POINTS FOR IDENTIFICATION

1. HEPATOCYTES ARRANGED IN ROWS
RADIATE IN ALL DIRECTIONS FROM THE
CENTRAL VEIN
2. SINUSOIDS ARE PRESENT BETWEEN
ADJACENT ROWS OF HEPATOCYTES
3. PRESENCE OF PORTAL TRIAD

GALL BLADDER

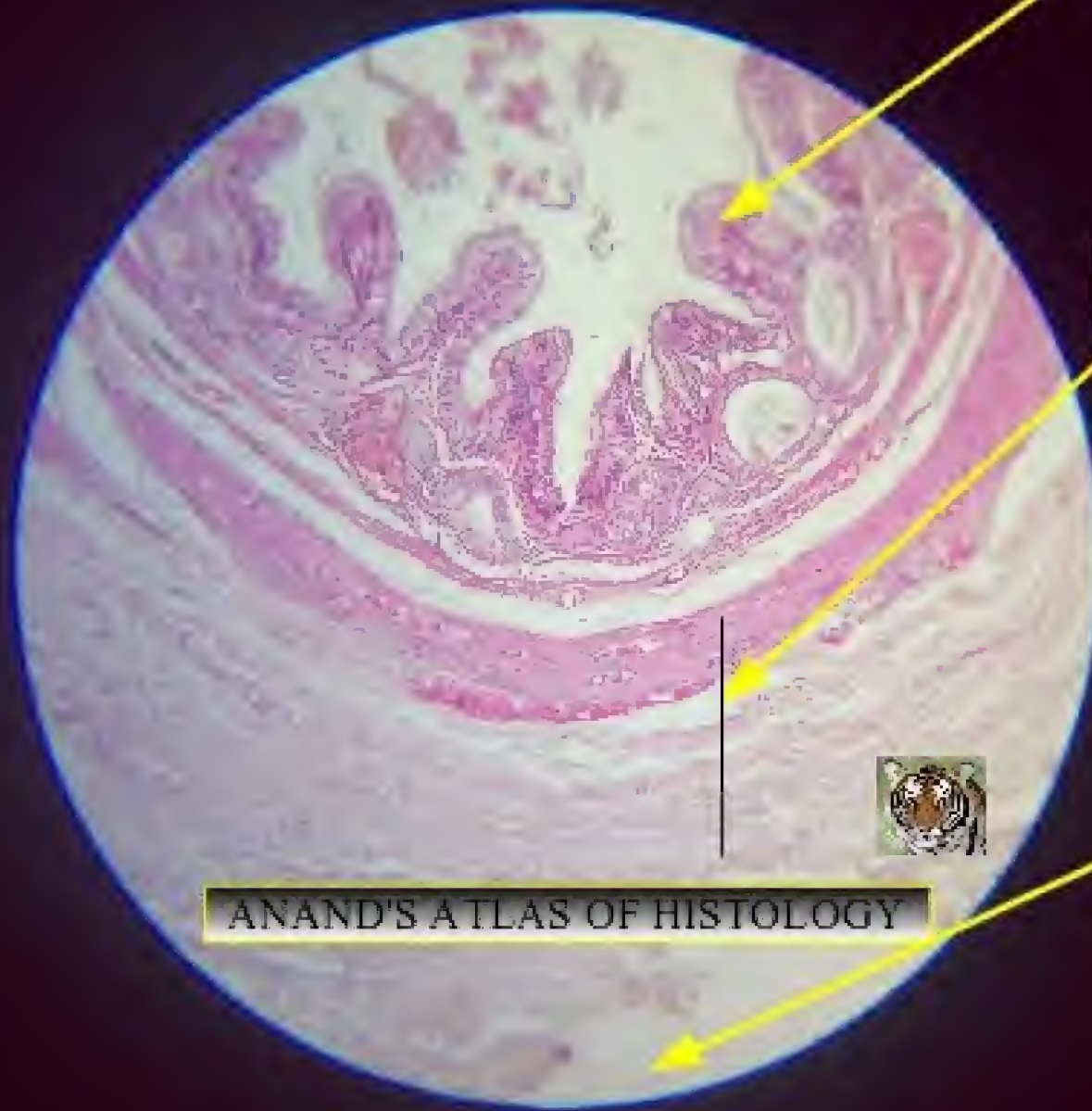
ANAND'S ATLAS OF HISTOLOGY

MUCOSA

FIBROMUSCULAR
COAT

SEROSAL COAT

ANAND'S ATLAS OF HISTOLOGY



MUCOSA

MICROVILLI

TALL COLUMNAR
EPITHELIUM



ANAND'S ATLAS OF HISTOLOGY

GALL BLADDER

POINTS FOR IDENTIFICATION

1. MUCOSA IS LINED BY TALL COLUMNAR CELLS WITH MICROVILLI
2. FIBROMUSCULAR COAT IS MADE OF COLLAGEN FIBRES, SMOOTH MUSCLE FIBRES AND ELASTIC FIBRES

PANCREAS

ANAND'S ATLAS OF HISTOLOGY

CENTROACINAR CELLS



PANCREATIC ISLET



ANAND'S ATLAS OF HISTOLOGY



CENTROACINAR CELLS

ISLET OF LANGERHANS

ANAND'S ATLAS OF HISTOLOGY



PANCREAS

POINTS FOR IDENTIFICATION

1. EXOCRINE PART SHOWS
CENTROACINAR CELLS AND DUCTS
2. ENDOCRINE PART SHOWS ISLETS
OF LANGERHANS

RESPIRATORY SYSTEM

LIST OF COLOUR PLATES

TRACHEA

LUNG

TRACHEA

MUCOSA

SUBMUCOSA

HYALINE CARTILAGE



ANAND'S ATLAS OF HISTOLOGY

PSEUDOSTRATIFIED CILIATED COLUMNAR EPITHELIUM



TRACHEAL GLANDS



ANAND'S ATLAS OF HISTOLOGY

TRACHEA

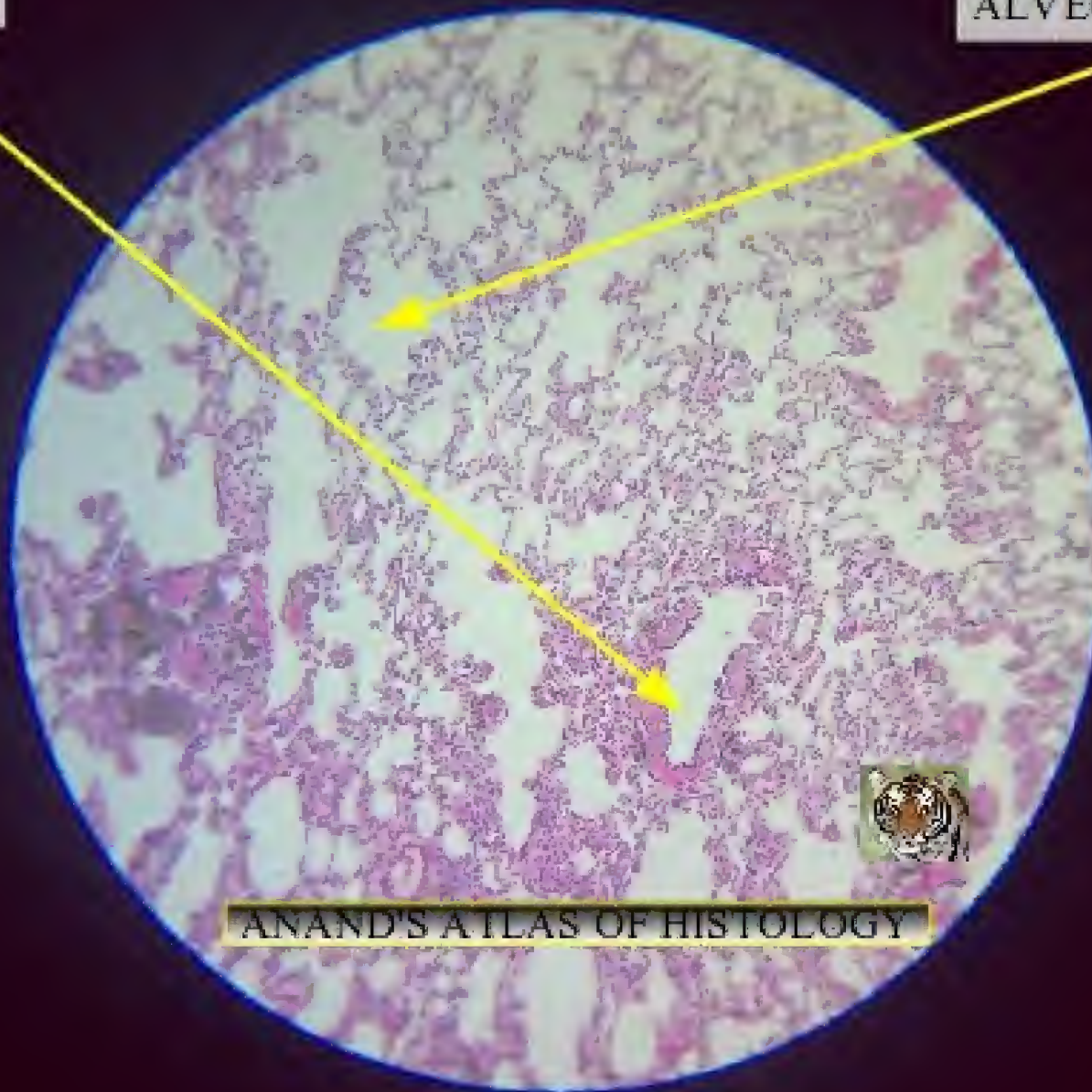
POINTS FOR IDENTIFICATION

1. MUCOSA IS LINED BY PSEUDOSTRATIFIED CILIATED COLUMNAR EPITHELIUM
2. PRESENCE OF TRACHEAL GLANDS
3. PRESENCE OF HYALINE CARTILAGE

LUNG

BRONCHIOLE

ALVEOLUS



ANAND'S ATLAS OF HISTOLOGY



SIMPLE SQUAMOUS EPITHELIUM
(ENDOTHELIUM)

ALVEOLUS



ANAND'S ATLAS OF HISTOLOGY

LUNG

POINTS FOR IDENTIFICATION

1. PRESENCE OF ALVEOLI
2. ALVEOLI ARE LINED BY SIMPLE SQUAMOUS EPITHELIUM
3. PRESENCE OF ALVEOLAR DUCTS AND ALVEOLAR SACS

EXCRETORY SYSTEM

LIST OF COLOUR PLATES

KIDNEY

URETER

URINARY BLADDER

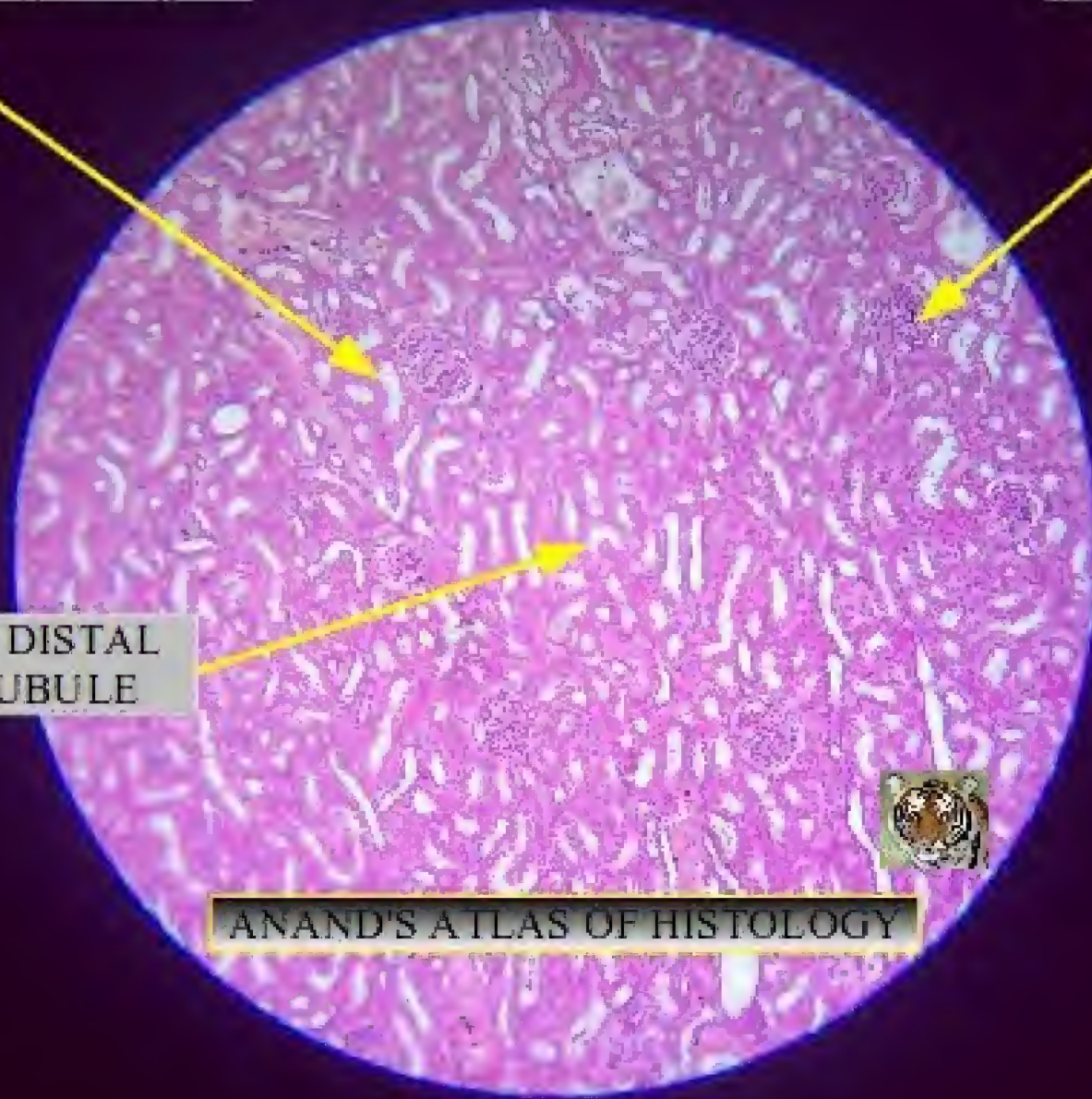
KIDNEY

ANAND'S ATLAS OF HISTOLOGY

CUT SECTIONS OF PROXIMAL
CONVOLUTED TUBULE

RENAL CORTEX

GLOMERULUS



CUT SECTIONS OF DISTAL
CONVOLUTED TUBULE

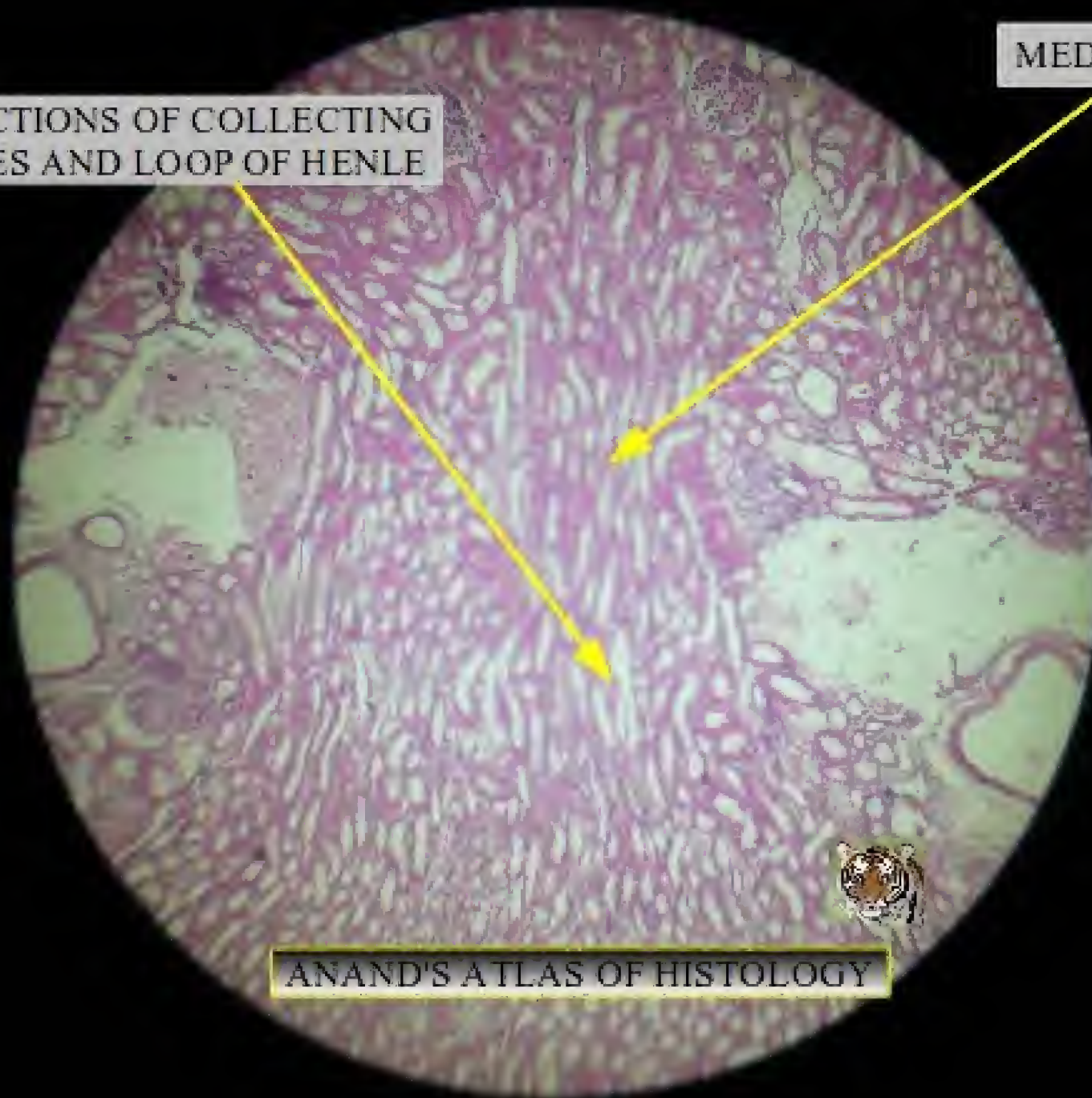
ANAND'S ATLAS OF HISTOLOGY



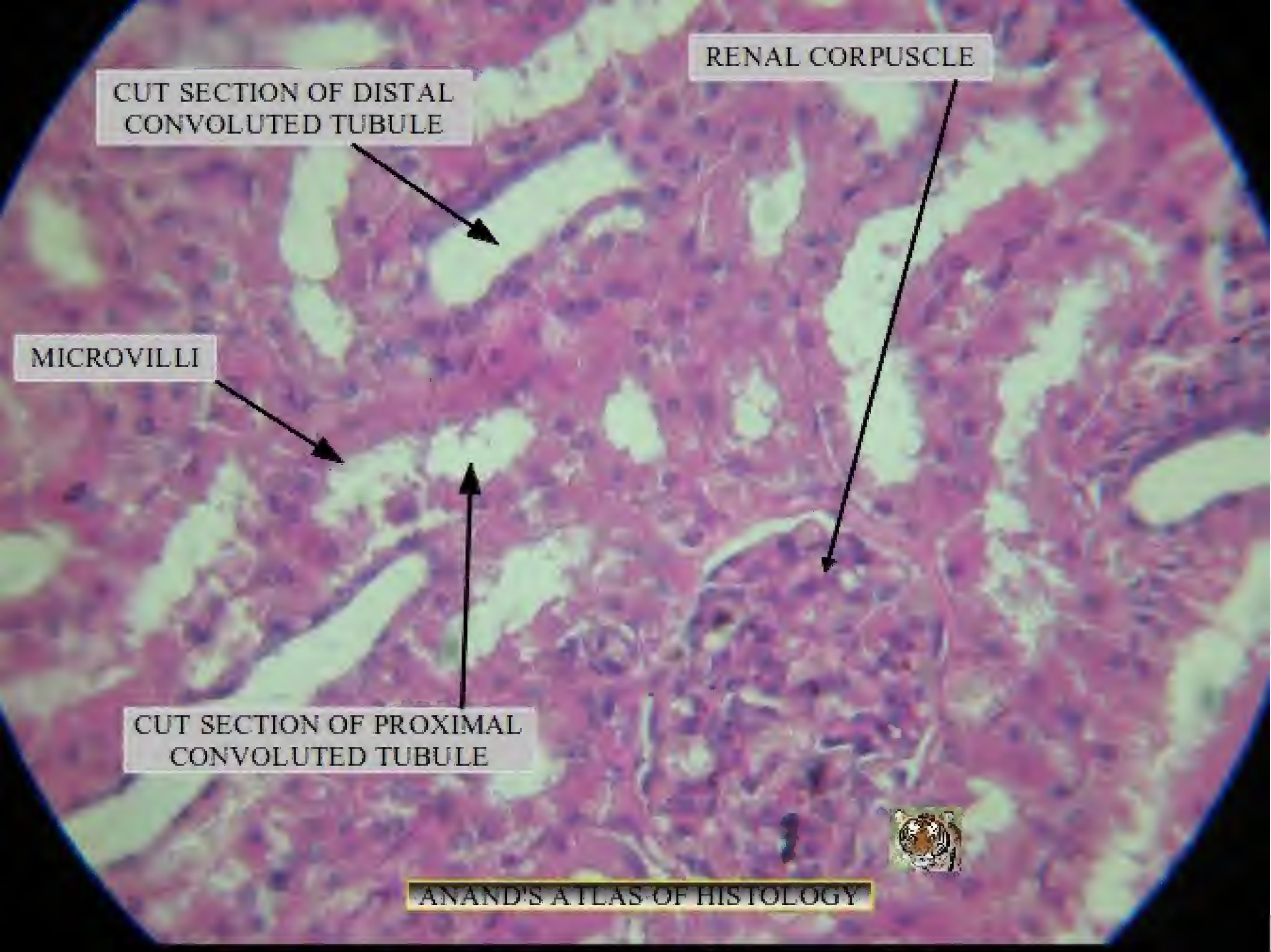
RENAL MEDULLA

MEDULLARY RAYS

CUT SECTIONS OF COLLECTING
TUBULES AND LOOP OF HENLE



ANAND'S ATLAS OF HISTOLOGY



RENAL CORPUSCLE

CUT SECTION OF DISTAL
CONVOLUTED TUBULE

MICROVILLI

CUT SECTION OF PROXIMAL
CONVOLUTED TUBULE



KIDNEY

POINTS FOR IDENTIFICATION

1. CUT SECTION OF KIDNEY SHOWS RENAL CORTEX AND RENAL MEDULLA
2. RENAL CORTEX SHOWS CUT SECTIONS OF RENAL CORPUSCLES, PROXIMAL AND DISTAL CONVOLUTED TUBULES
3. RENAL MEDULLA SHOWS CUT SECTIONS OF COLLECTING DUCTS PROJECTING INTO THE CORTEX AS MEDULLARY RAYS

URETER

MUCOSA

LUMEN

MUSCULAR COAT



LUMEN

UPPER DOME SHAPED CELL

TRANSITIONAL CELL EPITHELIUM
(UROTHELIUM)

MUSCULAR COAT



ANAND'S ATLAS OF HISTOLOGY

URETER

POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS
2. MUCOSA IS LINED BY
TRANSITIONAL CELL EPITHELIUM
3. MUSCULAR COAT IS MADE OF
THREE LAYERS

URINARY BLADDER

ANAND'S ATLAS OF HISTOLOGY

MUSCULAR COAT

TRANSITIONAL CELL EPITHELIUM
(UROTHELIUM)

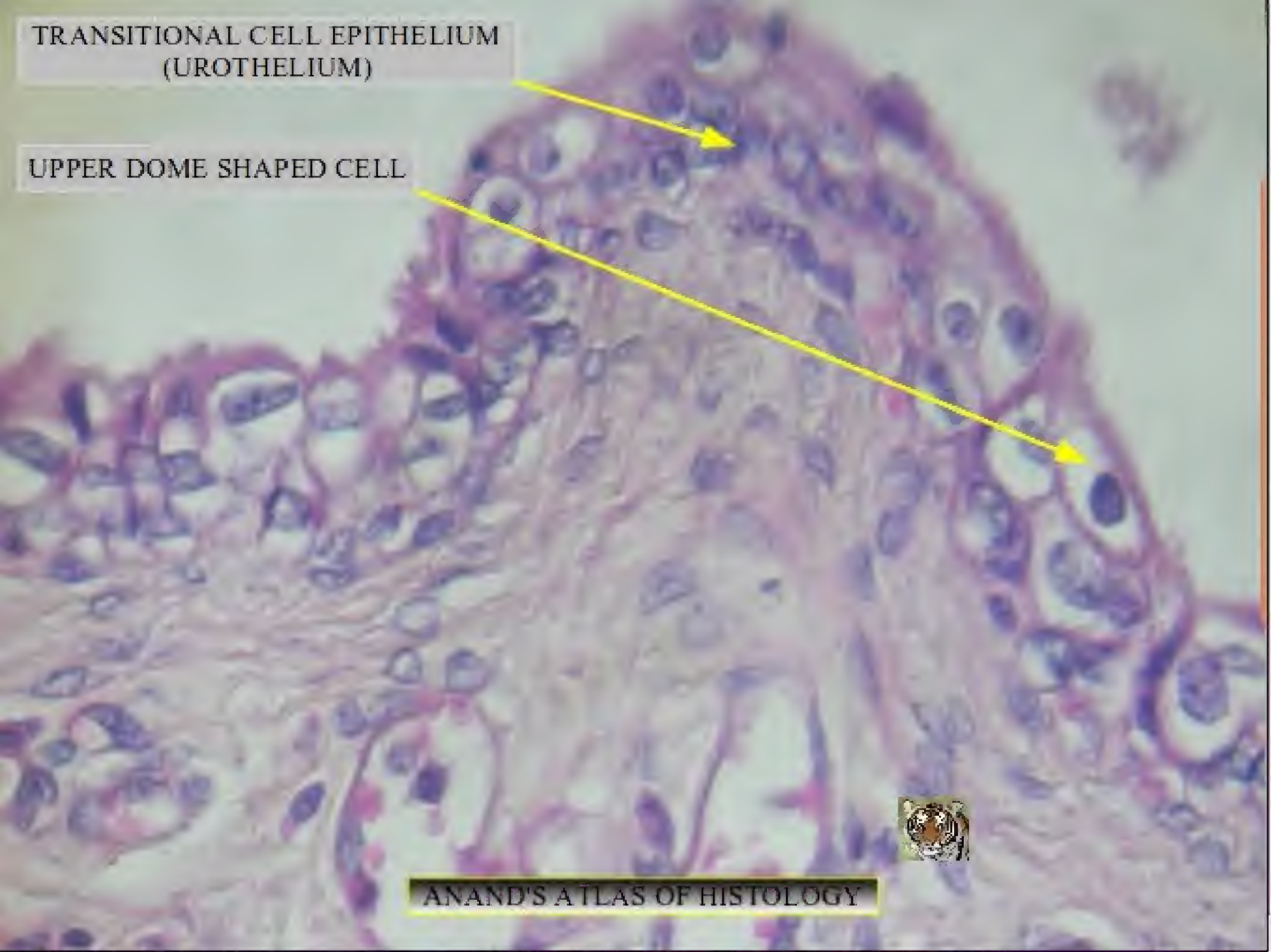
MUCOSA



ANAND'S ATLAS OF HISTOLOGY

TRANSITIONAL CELL EPITHELIUM
(UROTHELIUM)

UPPER DOME SHAPED CELL



URINARY BLADDER

POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS
2. MUCOSA IS LINED BY TRANSITIONAL CELL EPITHELIUM
3. MUSCULAR COAT IS VERY THICK AND IS THREE LAYERED, INNER AND OUTER LONGITUDINAL AND MIDDLE CIRCULAR LAYERS

REPRODUCTIVE SYSTEM – MALE

LIST OF COLOUR PLATES

TESTIS
EPIDIDYMIS
VAS DEFERENS
PROSTATE GLAND
SEMINAL VESICLE

TESTIS

CUT SECTIONS OF
SEMINIFEROUS TUBULES

SPERMS AT VARIOUS
STAGES OF MATURATION



ANAND'S ATLAS OF HISTOLOGY



LUMEN

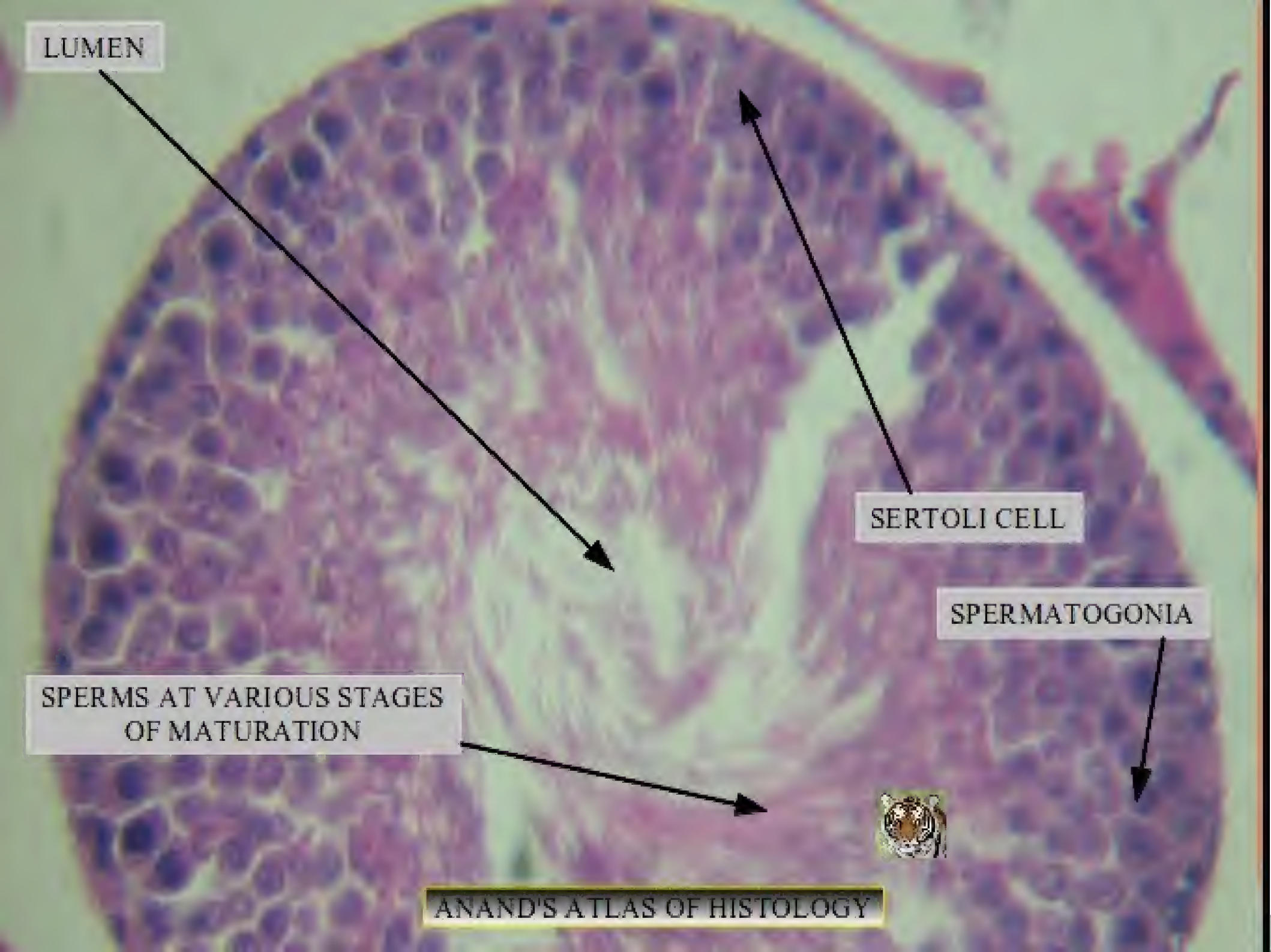
SERTOLI CELL

SPERMATOGONIA

SPERMS AT VARIOUS STAGES
OF MATURATION



ANAND'S ATLAS OF HISTOLOGY



TESTIS

POINTS FOR IDENTIFICATION

1. CUT SECTIONS OF SEMINIFEROUS TUBULES ARE SEEN
2. SPERMS AT VARIOUS STAGES OF MATURATION CAN BE SEEN IN THE LUMEN
3. SERTOLI CELLS WHICH PROVIDE NOURISHMENT TO DEVELOPING SPERM IS ALSO SEEN

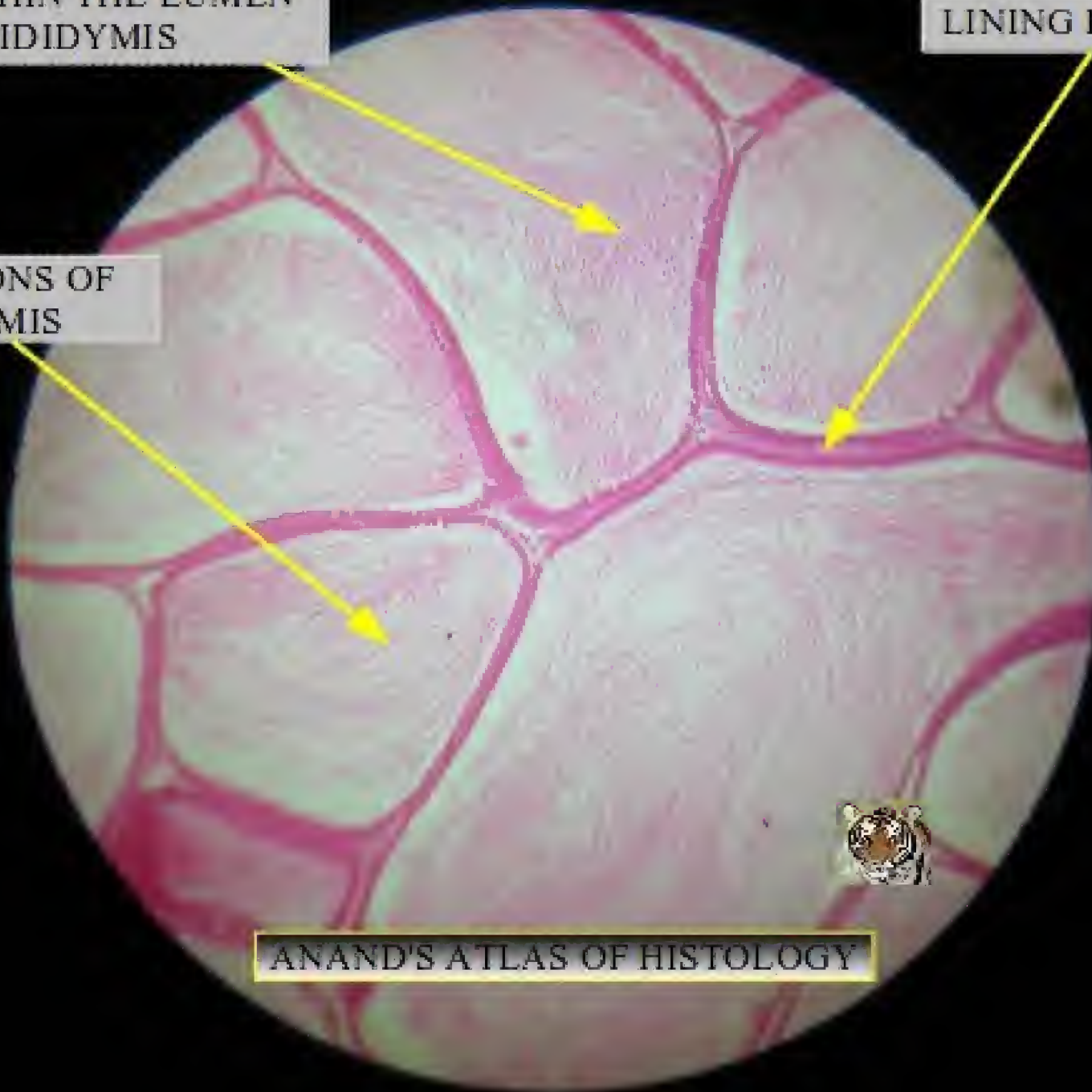
EPIDIDYMIS

ANAND'S ATLAS OF HISTOLOGY

SPERMS WITHIN THE LUMEN
OF EPIDIDYMIS

LINING EPITHELIUM

CUT SECTIONS OF
EPIDIDYMIS



ANAND'S ATLAS OF HISTOLOGY

STEREOCILIA

PSEUDOSTRATIFIED
COLUMNAR EPITHELIUM

SPERMS



EPIDIDYMIS

POINTS FOR IDENTIFICATION

1. CUT SECTIONS OF EPIDIDYMIS ARE SEEN
2. SPERMS CAN BE SEEN IN THE LUMEN
3. LINING EPITHELIUM IS PSEUDOSTRATIFIED COLUMNAR WITH APICAL MICROVILLI TERMED AS STEREOCILIA

VAS DEFERENS

ANAND'S ATLAS OF HISTOLOGY

LUMEN

MUCOSA

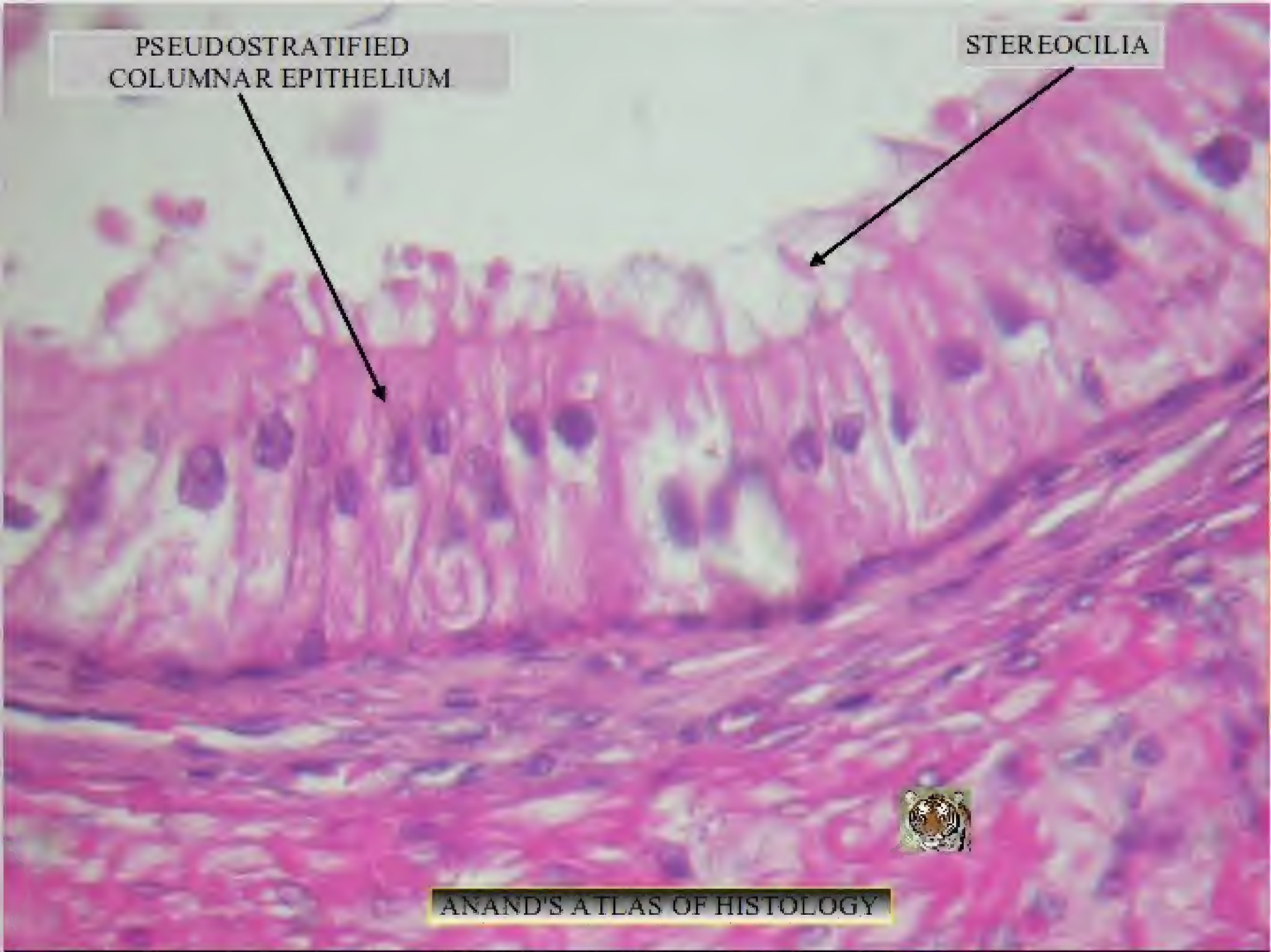
MUSCULAR COAT



ANAND'S ATLAS OF HISTOLOGY

PSEUDOSTRATIFIED
COLUMNAR EPITHELIUM

STEREOCILIA



VAS DEFERENS

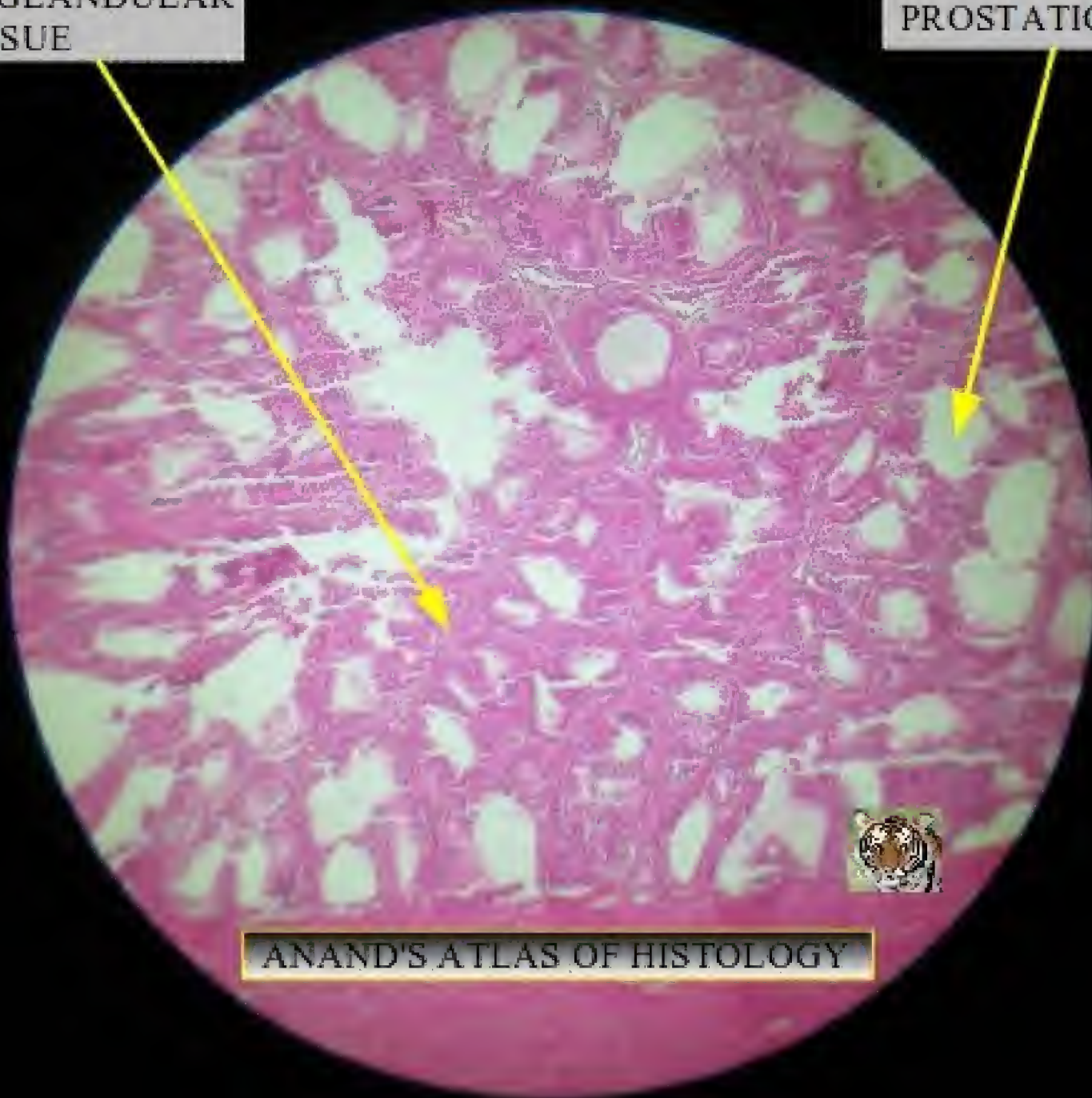
POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS
2. LINED BY PSEUDOSTRATIFIED COLUMNAR EPITHELIUM WITH STEREOCILIA
3. MUSCULAR COAT IS THICK

PROSTATE GLAND

PROSTATIC GLANDULAR
TISSUE

PROSTATIC FOLLICLE



ANAND'S ATLAS OF HISTOLOGY

PSEUDOSTRATIFIED EPITHELIUM

MUSCULAR STROMA

COLLOID AMYLOID BODIES

ANAND'S ATLAS OF HISTOLOGY



PROSTATE GLAND

POINTS FOR IDENTIFICATION

1. PROSTATIC FOLLICLES ARE SEEN IN GLANDULAR TISSUE
2. FOLLICLES ARE EMBEDDED IN A FIBROMUSCULAR STROMA
3. AMYLOID MATERIAL IS SEEN WITHIN THE FOLLICLE
4. FOLLICLE IS LAYERED BY PSEUDOSTRATIFIED EPITHELIUM OCCASIONALLY EPITHELIUM CAN BE BILAYERED

SEMINAL VESICLE

ANAND'S ATLAS OF HISTOLOGY

DIVERTICULAE

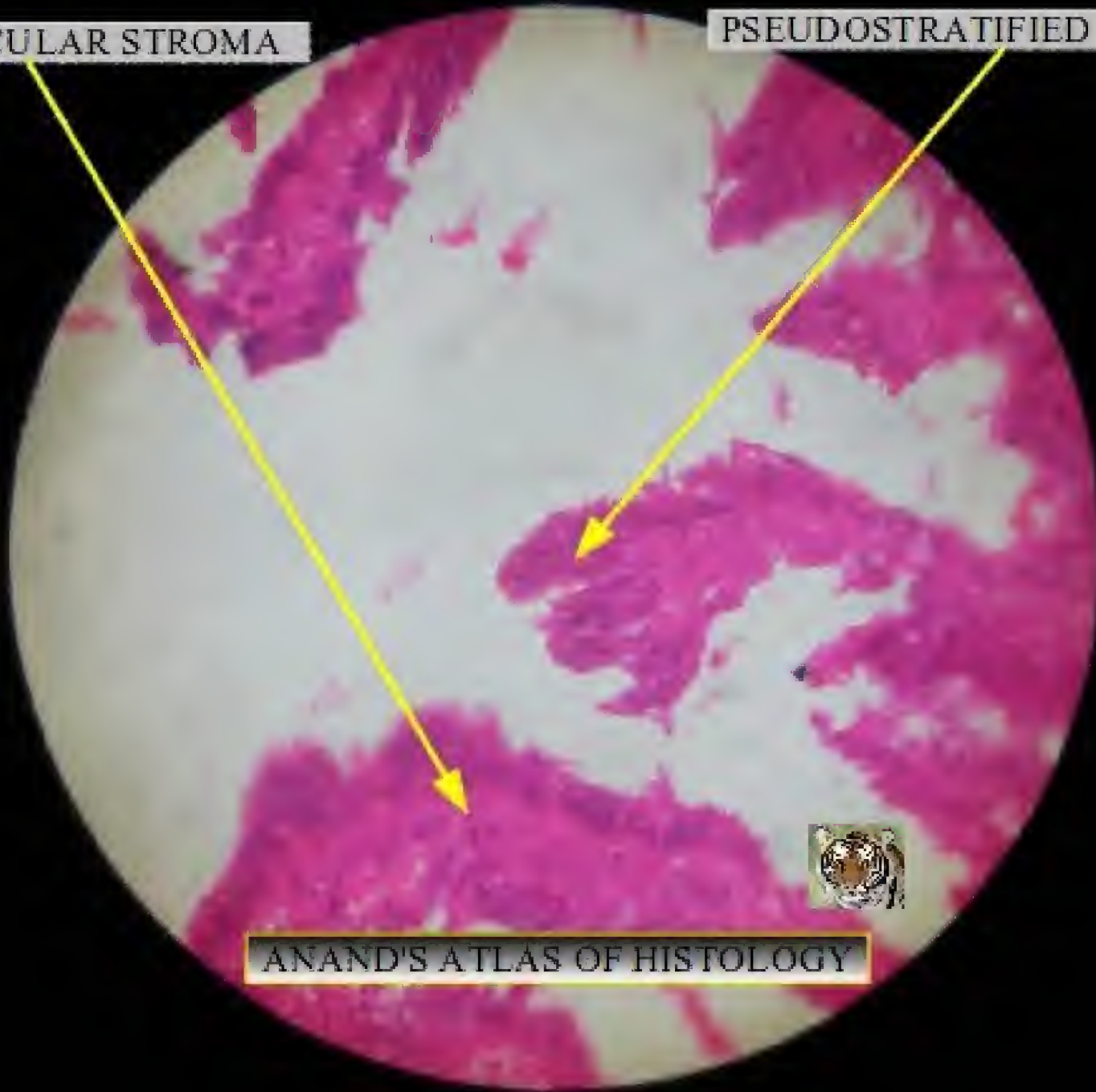
LUMEN



ANAND'S ATLAS OF HISTOLOGY

FIBRO MUSCULAR STROMA

PSEUDOSTRATIFIED EPITHELIUM



ANAND'S ATLAS OF HISTOLOGY



SEMINAL VESICLE

POINTS FOR IDENTIFICATION

1. TUBULAR APPEARANCE WITH PRESENCE OF DIVERTICULAE
2. DIVERTICULAE ARE LINED BY PSEUDOSTRATIFIED EPITHELIUM
3. PRESENCE OF LUMEN

REPRODUCTIVE SYSTEM – FEMALE

LIST OF COLOUR PLATES

UTERUS

FALLOPIAN TUBE

OVARY

MAMMARY GLAND

PLACENTA

UTERUS

PERIMETRIUM

ENDOMETRIUM

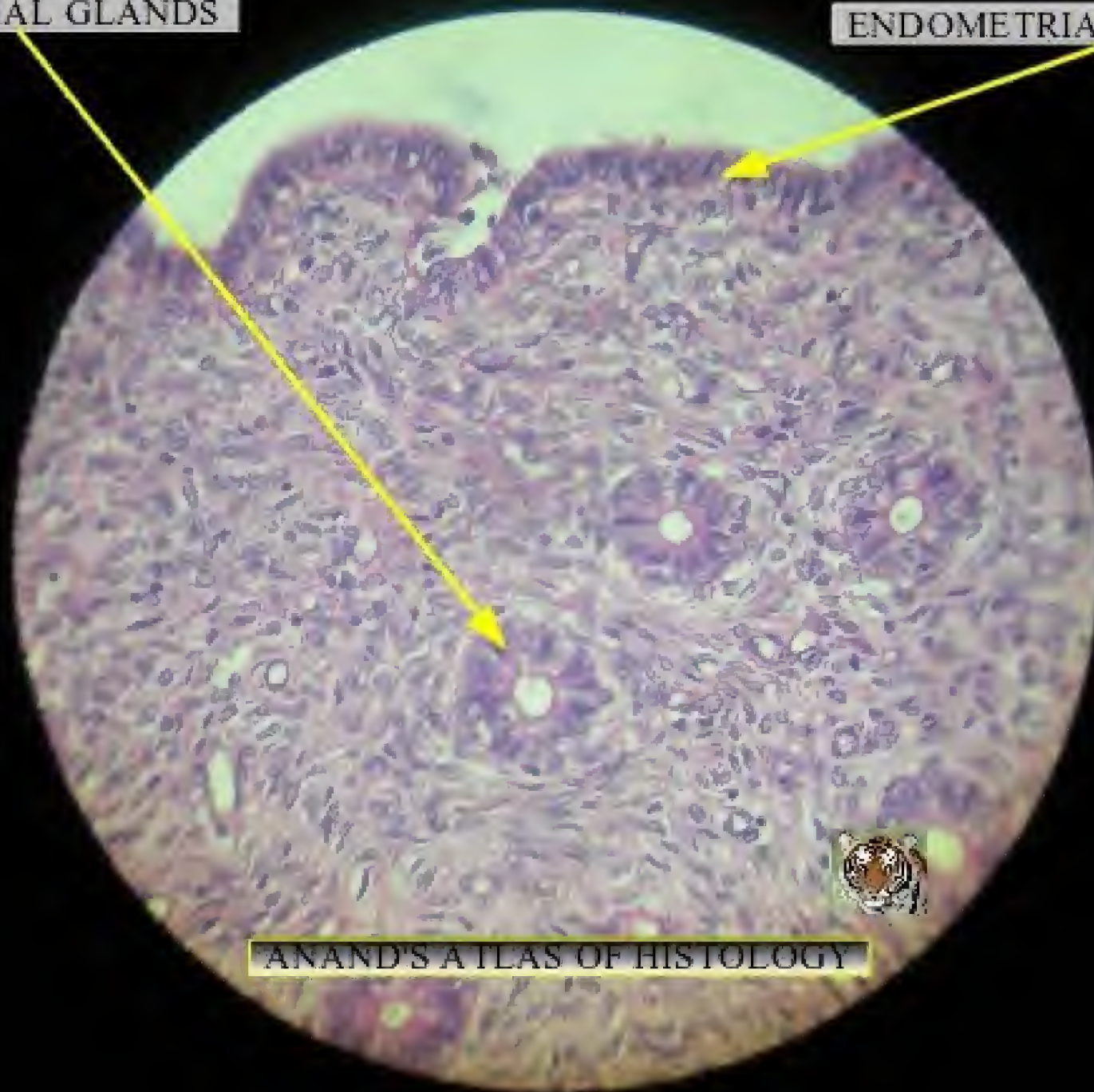
MYOMETRIUM



ANAND'S ATLAS OF HISTOLOGY

ENDOMETRIAL GLANDS

ENDOMETRIAL EPITHELIUM



ANAND'S ATLAS OF HISTOLOGY

UTERUS

POINTS FOR IDENTIFICATION

1. UTERINE WALL IS MADE OF THREE LAYERS FROM INSIDE TO OUTSIDE ENDOMETRIUM, MYOMETRIUM AND PERIMETRIUM
2. PRESENCE OF UTERINE GLANDS IN ENDOMETRIUM
3. ENDOMETRIAL EPITHELIAL LINING IS COLUMNAR EPITHELIUM

FALLOPIAN TUBE (UTERINE TUBE)

MUCOSA

LUMEN

MUSCULAR COAT



CILIATED COLUMNAR EPITHELIUM

PEG CELLS (SECRETORY CELLS)

CILIATED CELLS

ANAND'S ATLAS OF HISTOLOGY



FALLOPIAN TUBE

POINTS FOR IDENTIFICATION

1. MUCOSA IS THROWN INTO FOLDS
AND IS LINED BY CILIATED
COLUMNAR EPITHELIUM
2. SECRETORY CELLS (PEG CELLS)
USUALLY PROJECT IN THE LUMEN

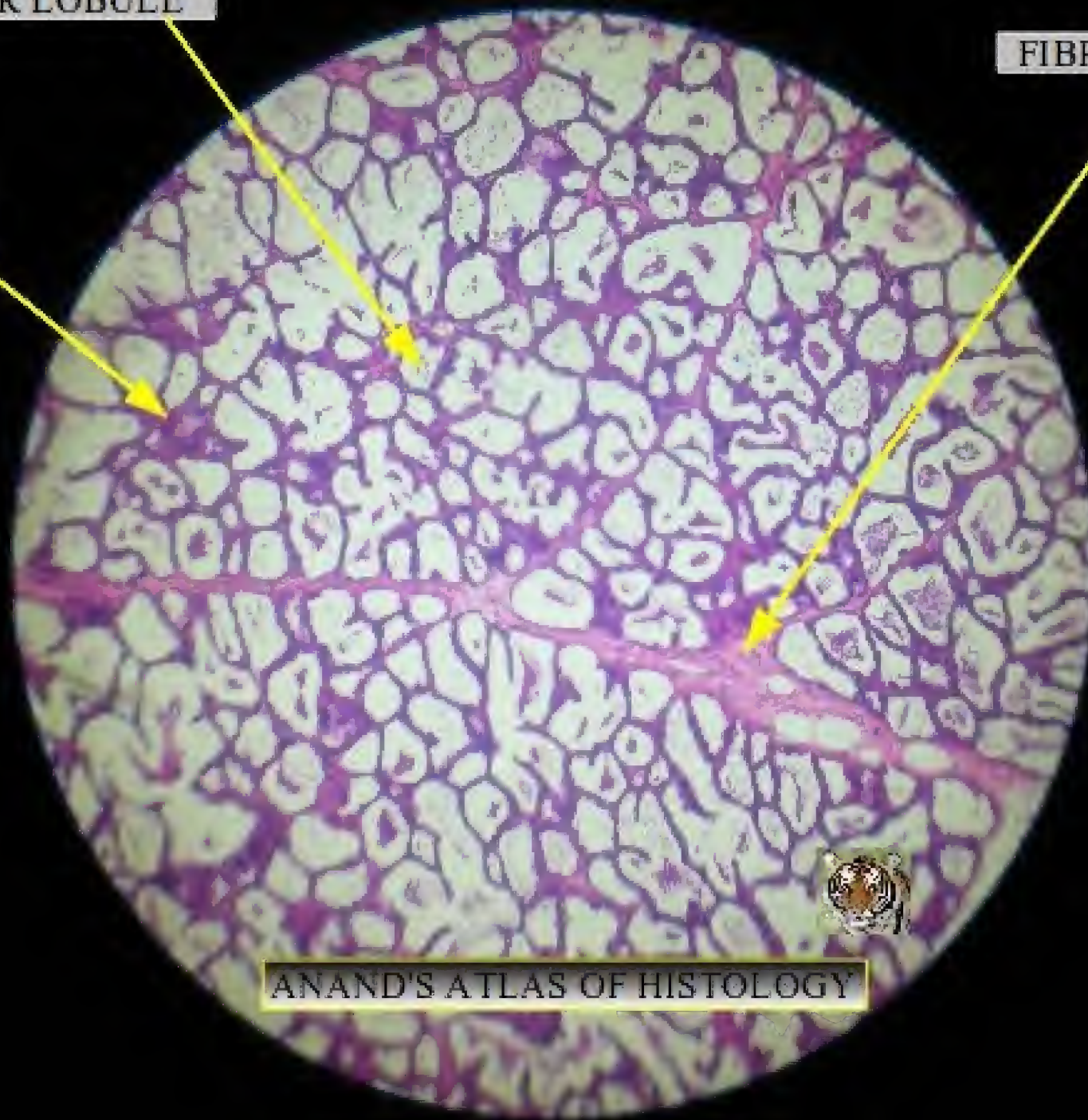
MAMMARY GLAND

ANAND'S ATLAS OF HISTOLOGY

GLANDULAR LOBULE

FIBROUS SEPTA

DUCT



ANAND'S ATLAS OF HISTOLOGY

GLANDULAR LOBULE

MYOEPIHELIAL CELL

DUCT



MAMMARY GLAND

POINTS FOR IDENTIFICATION

1. CUT SECTION SHOWS GLANDULAR LOBULES
2. GLANDS ARE OF RACEMOSE TYPE
3. MYOEPIHELIAL CELLS ARE SEEN AT THE BASE OF DUCTS
4. SOME LARGER DUCTS ARE BILAYERED

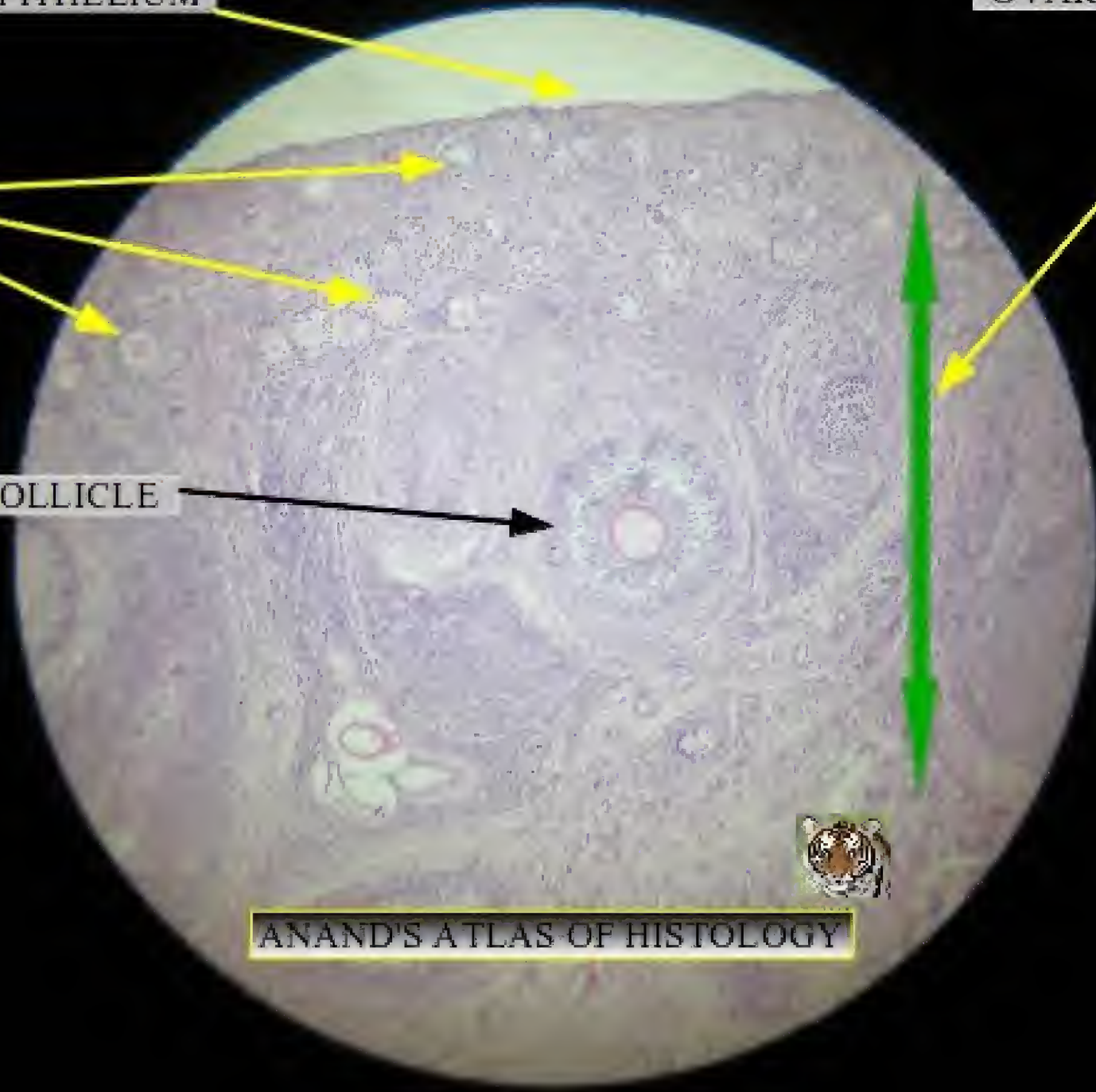
OVARY

GERMINAL EPITHELIUM

OVARIAN CORTEX

OOCYTES

GRAFFIAN FOLLICLE



ANAND'S ATLAS OF HISTOLOGY

ATRETIC FOLLICLES

OVARIAN MEDULLA

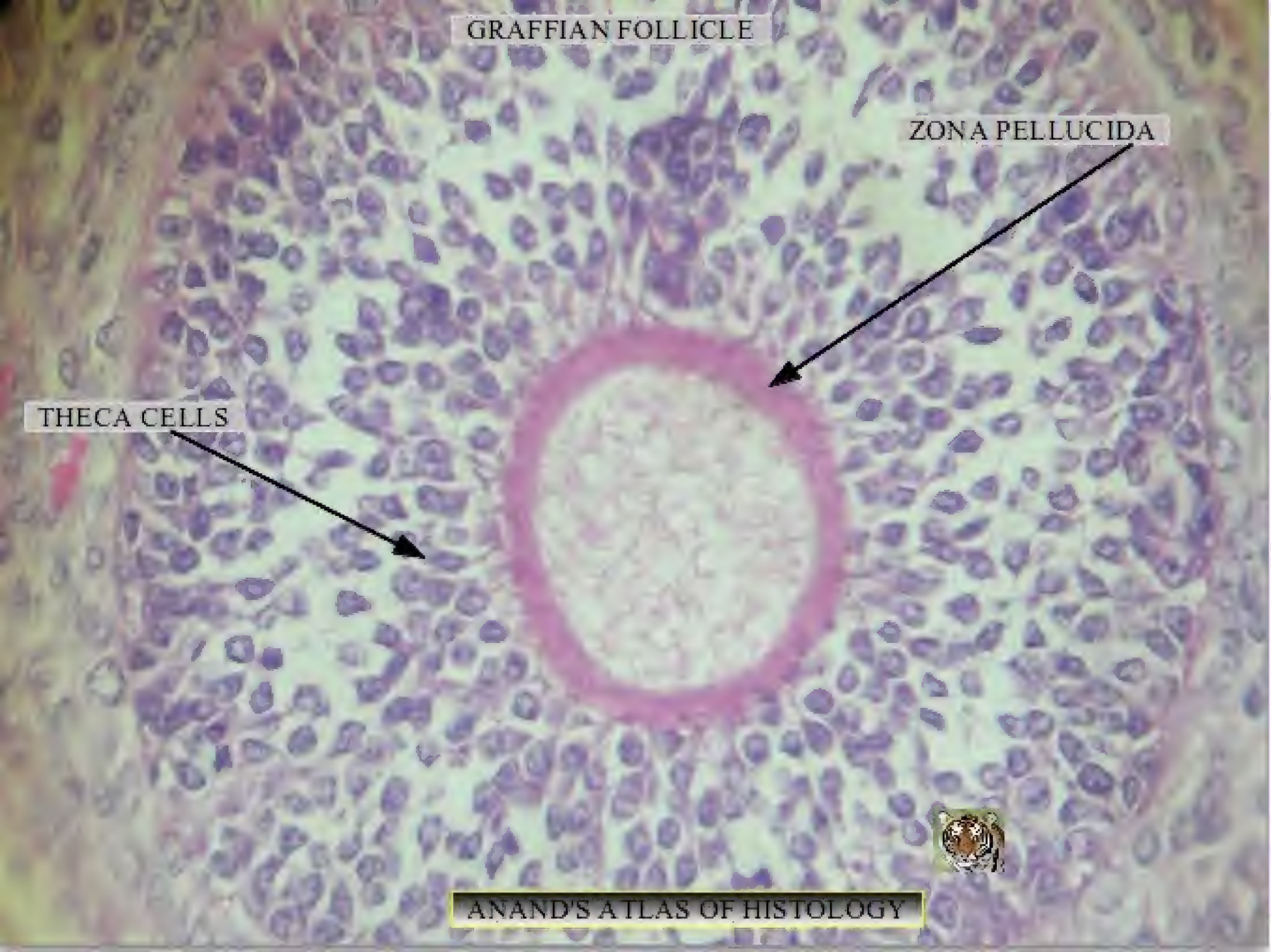


ANAND'S ATLAS OF HISTOLOGY

GRAAFIAN FOLLICLE

ZONA PELLUCIDA

THECA CELLS



ANAND'S ATLAS OF HISTOLOGY

OVARY

POINTS FOR IDENTIFICATION

1. PRESENCE OF CORTEX AND MEDULLA
2. OOCYTES ARE SEEN IN VARIOUS STAGES OF MATURATION
3. GRAFFIAN FOLLICLE IS SEEN
4. ATRETIC FOLLICLES ARE SEEN IN THE OVARIAN MEDULLA

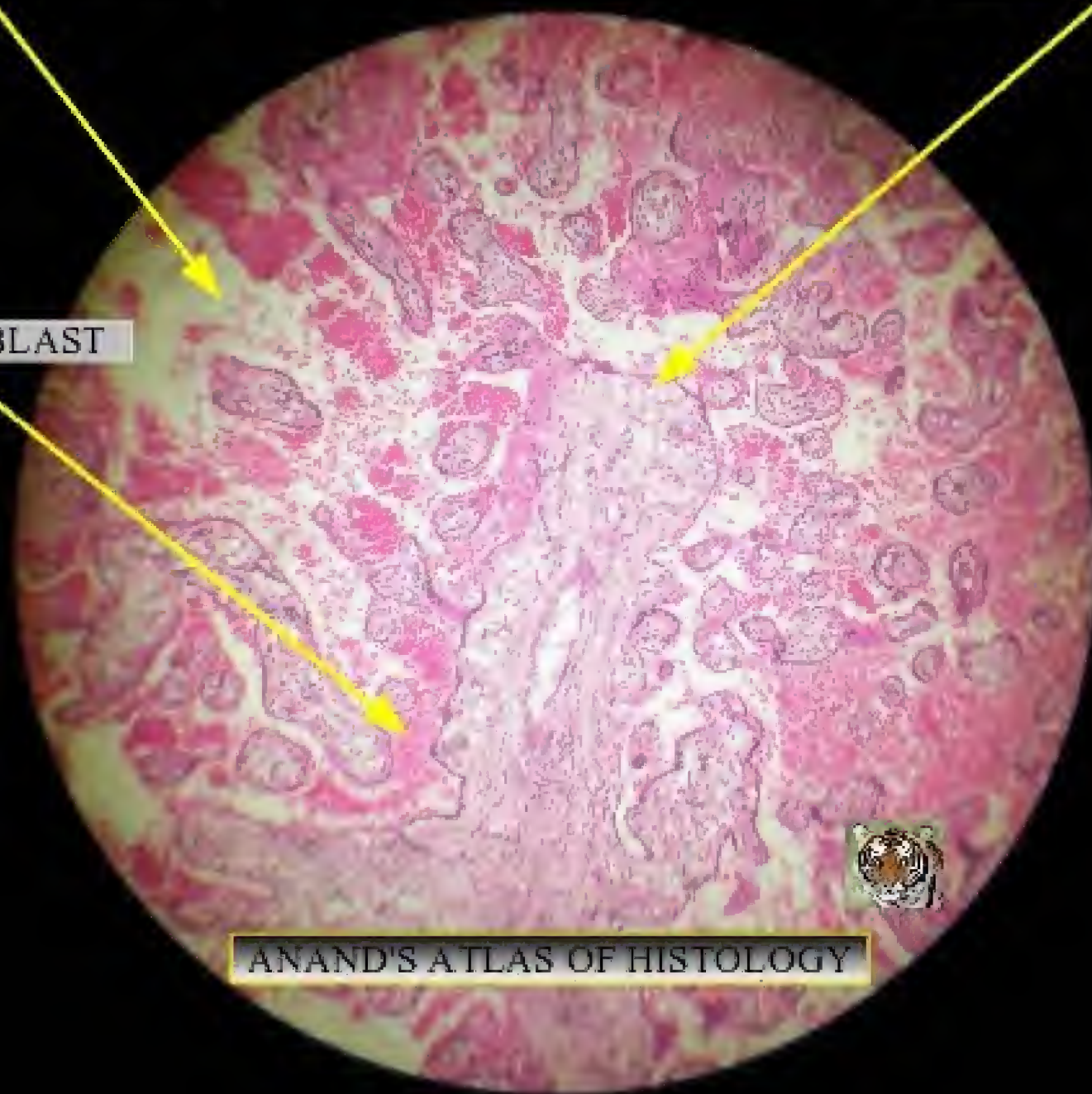
PLACENTA

ANAND'S ATLAS OF HISTOLOGY

INTER VILLOUS SPACES

VILLUS

CYTOTROPHOBLAST



ANAND'S ATLAS OF HISTOLOGY



SYNCYTIOTROPHOBLAST

CYTOTROPHOBLAST

INTERVILLOUS SPACES

HOFBAUER CELL



PLACENTA

POINTS FOR IDENTIFICATION

1. PRESENCE OF VILLI
2. CYTOTROPHOBLASTS AND SYNCYTIOTROPHOBLASTS ARE SEEN
3. INTERVILLOUS SPACES ARE SEEN

ENDOCRINE SYSTEM

LIST OF COLOUR PLATES

THYROID GLAND
PARATHYROID GLAND
PITUITARY GLAND
ADRENAL GLAND

THYROID GLAND

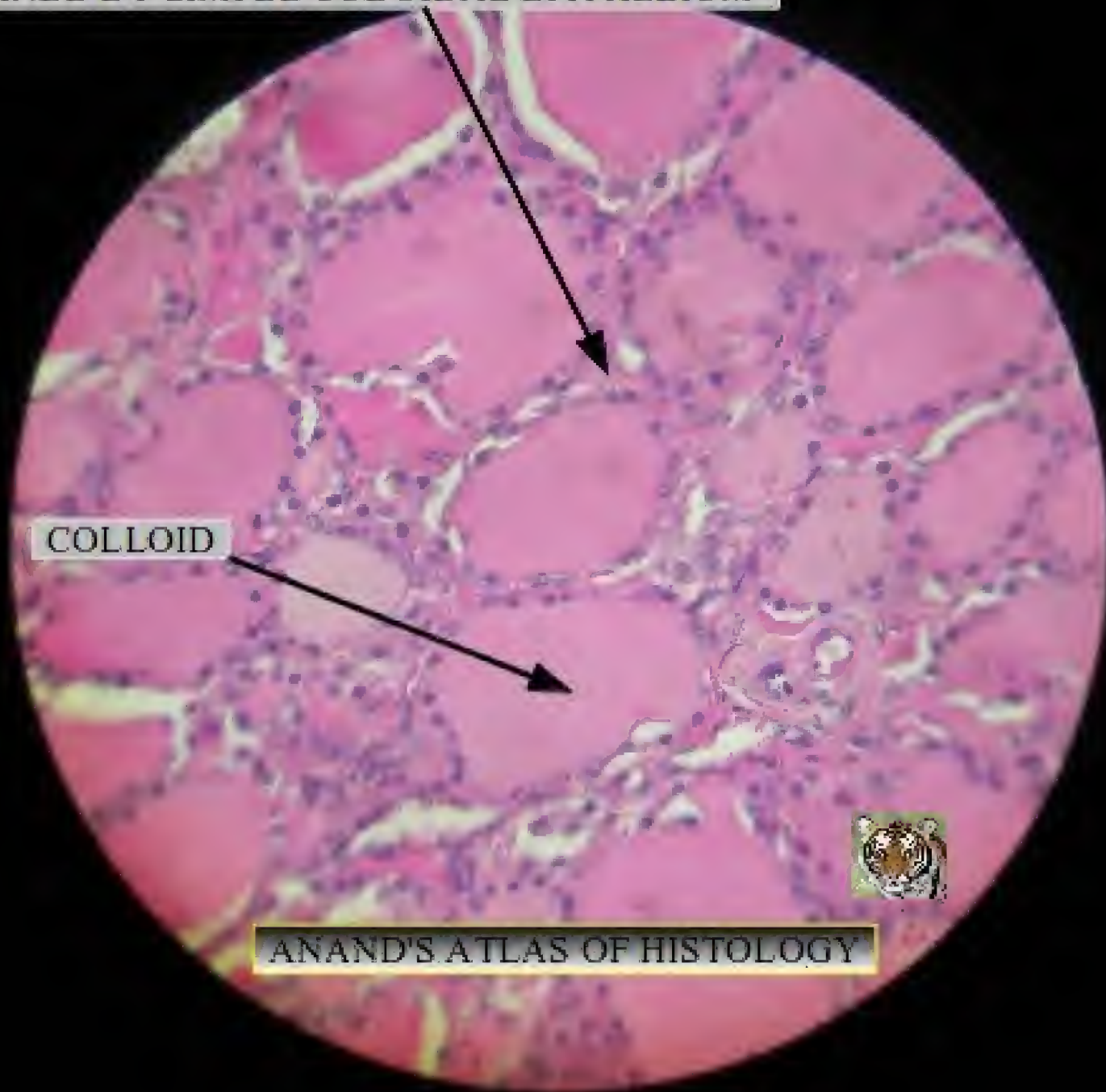
ANAND'S ATLAS OF HISTOLOGY

THYROID FOLLICLES

COLLOID



FOLLICLE LINED BY SIMPLE CUBOIDAL EPITHELIUM



COLLOID

ANAND'S ATLAS OF HISTOLOGY

THYROID GLAND

POINTS FOR IDENTIFICATION

1. CUT SECTION OF THYROID GLAND SHOWS THYROID FOLLICLES
2. FOLLICULAR CAVITY CONTAINS COLLOID MATERIAL
3. LINING EPITHELIUM OF FOLLICLE IS SIMPLE CUBOIDAL WHEN THERE IS MODERATE AMOUNT OF COLLOID

PARATHYROID GLAND

PARATHYROID GLAND

THYROID
GLAND



ANAND'S ATLAS OF HISTOLOGY



CHIEF CELLS

OXYPHIL CELLS



PARATHYROID GLAND

POINTS FOR IDENTIFICATION

1. CUT SECTION SHOWS CHIEF CELLS AND OXYPHIL CELLS WHICH ARE ARRANGED IN CORDS
2. CHIEF CELLS ARE SMALL ROUNDED CELLS WITH VESICULAR NUCLEI
3. OXYPHIL CELLS ARE LARGE AND POLYHEDRAL

PITUITARY GLAND

PARS POSTERIOR
(NEUROHYPOPHYSIS)

PARS ANTERIOR (ADENOHYPOPHYSIS)

PARS INTERMEDIA
(RATHKE'S CLEFT)



ANAND'S ATLAS OF HISTOLOGY



PARS ANTERIOR (ADENOHYPOPHYSIS)

CHROMOPHIL
(BASOPHIL)

CHROMOPHIL
(ACIDOPHIL)

SINUSOID

CHROMOPHOBES



PARS POSTERIOR
(NEUROHYPOPHYSIS)

UNMYELINATED NERVE FIBRES

PITUICYTES



PITUITARY GLAND

POINTS FOR IDENTIFICATION

1. CUT SECTION SHOWS PARS ANTERIOR, PARS POSTERIOR AND PARS INTERMEDIA
2. PARS ANTERIOR SHOWS CHROMOPHOBS AND CHROMOPHILS
3. PARS POSTERIOR SHOWS UNMYELINATED NERVE FIBRES AND PITUICYTES

ADRENAL GLAND

(SUPRA RENAL GLAND)

ADRENAL CORTEX

OUTER CAPSULE

ZONA GLOMERULOSA

ZONA FASCICULATA

ANAND'S ATLAS OF HISTOLOGY



ADRENAL CORTEX

ZONA FASCICULATA

ZONA RETICULARIS

ADRENAL MEDULLA



OUTER CAPSULE

ZONA GLOMERULOSA

SMALL POLYHEDRAL CELLS IN
ROUNDED CLUSTERS



ADRENAL MEDULLA

CHROMAFFIN CELLS

RETICULAR FIBRES

SINUSOIDS



ADRENAL GLAND (SUPRA RENAL)

POINTS FOR IDENTIFICATION

1. PRESENCE OF CORTEX AND MEDULLA
2. ADRENAL CORTEX IS MADE OF THREE LAYERS – ZONA GLOMERULOSA, ZONA FASCICULATA, ZONA RETICULARIS
3. ZONA GLOMERULOSA IS MADE OF SMALL POLYHEDRAL CELLS IN A ROUNDED CLUSTER
4. ZONA FASCICULATA IS MADE OF COLUMNS OF CELLS SEPARATED BY SINUSOIDS
5. ZONA RETICULARIS CELLS ARE ARRANGED AS ANASTOMOSING CORDS

ADRENAL GLAND (SUPRA RENAL)

POINTS FOR IDENTIFICATION

6. ADRENAL MEDULLA IS MADE OF GROUPS OF CHROMAFFIN CELLS EMBEDDED IN A NETWORK OF RETICULAR FIBRES AND SEPARATED BY WIDE SINUSOIDS

SPECIAL SENSORY ORGANS

VISION

LIST OF COLOUR PLATES

CORNEA

RETINA

LACRIMAL GLAND

EYELID

CORNEA

ANTERIOR EPITHELIUM

CORNEAL STROMA

POSTERIOR ENDOTHELIUM

ANAND'S ATLAS OF HISTOLOGY



STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM

BOWMAN'S MEMBRANE

CORNEAL STROMA MADE UP OF
REGULARLY ARRANGED COLLAGEN FIBRES



ANAND'S ATLAS OF HISTOLOGY

CORNEA

POINTS FOR IDENTIFICATION

1. ANTERIOR EPITHELIUM IS MADE UP OF STRATIFIED SQUAMOUS NON KERATINISED EPITHELIUM
2. CORNEAL STROMA IS MADE OF REGULARLY ARRANGED COLLAGEN FIBRES
3. POSTERIOR ENDOTHELIUM IS SIMPLE SQUAMOUS EPITHELIUM

RETINA

ANAND'S ATLAS OF HISTOLOGY

LAYER OF RODS AND CONES

LAYER OF OPTIC NERVE FIBRES



PIGMENT CELL LAYER

LAYER OF RODS AND CONES

EXTERNAL NUCLEAR LAYER

EXTERNAL PLEXIFORM LAYER

INTERNAL NUCLEAR LAYER

INTERNAL PLEXIFORM LAYER

GANGLIONIC CELL LAYER

LAYER OF OPTIC NERVE FIBRES

ANAND'S ATLAS OF HISTOLOGY



RETINA

POINTS FOR IDENTIFICATION

1. MADE UP OF 10 LAYERS
2. PRESENCE OF LAYER OF RODS AND CONES
3. PRESENCE OF GANGLIONIC CELL LAYER
4. PRESENCE OF LAYER OF OPTIC NERVE FIBRES

LACRIMAL GLAND

ANAND'S ATLAS OF HISTOLOGY

LOBULES

INTERLOBAR SEPTA

DUCT



LOBULES

SECRETIONS

TUBULOACINAR CELLS



LACRIMAL GLAND

POINT FOR IDENTIFICATION

1. CUT SECTION SHOWS LOBULATED GLAND
2. LOBULE SHOWS TUBULOACINAR CELLS
3. PRESENCE OF INTERLOBULAR SEPTA

EYELID

STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

ORBICULARIS OCULI

GLANDS

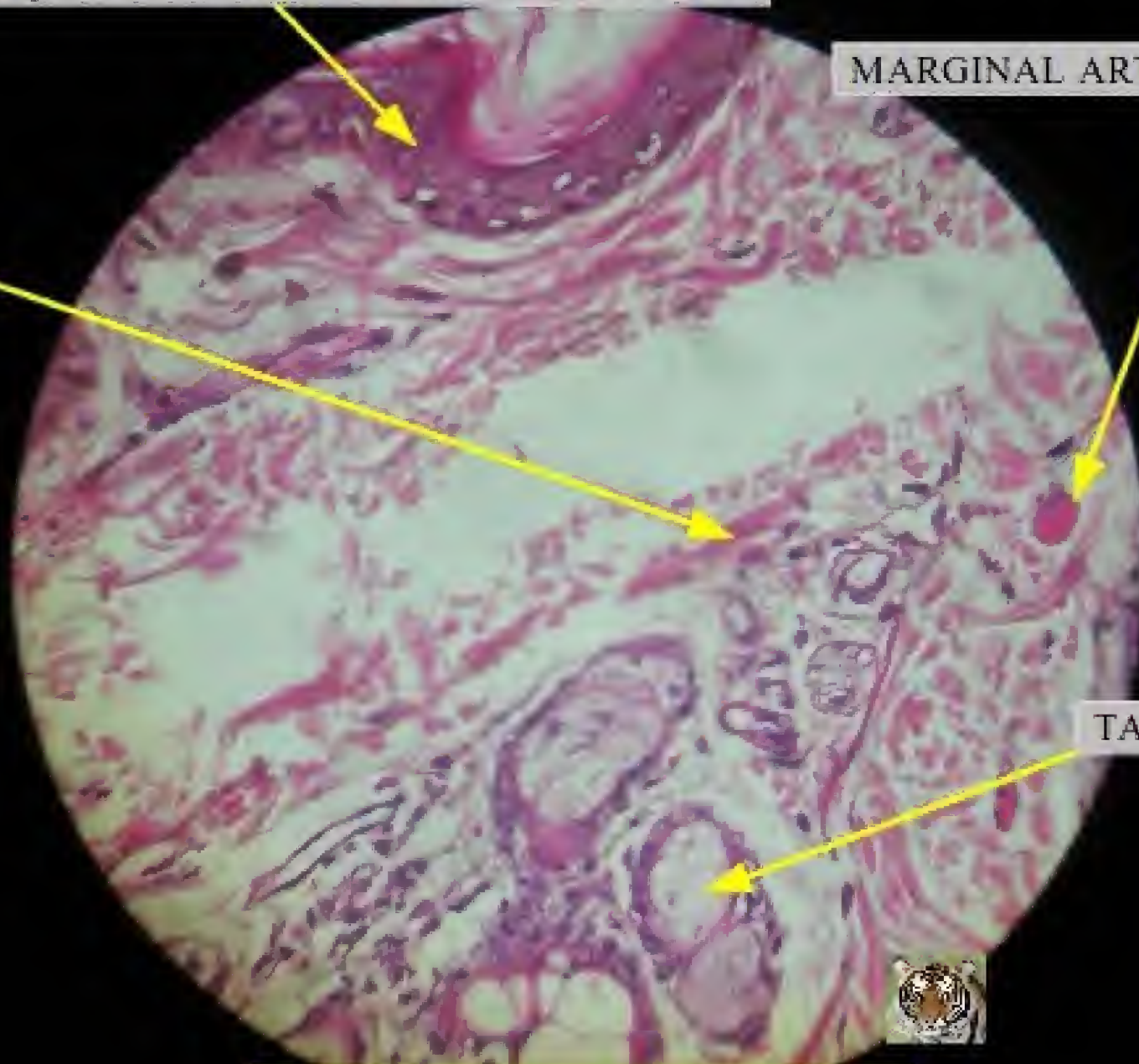


STRATIFIED SQUAMOUS KERATINISED EPITHELIUM

MARGINAL ARTERIAL ARCADE

TARSUS

TARSAL GLANDS



ANAND'S ATLAS OF HISTOLOGY

EYELID

POINTS FOR IDENTIFICATION

1. EPITHELIUM IS STRATIFIED
SQUAMOUS KERATINISED
EPITHELIUM

2. PRESENCE OF TARSAAL GLANDS

3. PRESENCE OF SKELETAL MUSCLE

CENTRAL NERVOUS SYSTEM

LIST OF COLOUR PLATES

CEREBRUM

CEREBELLUM

SPINAL CORD

SENSORY GANGLION

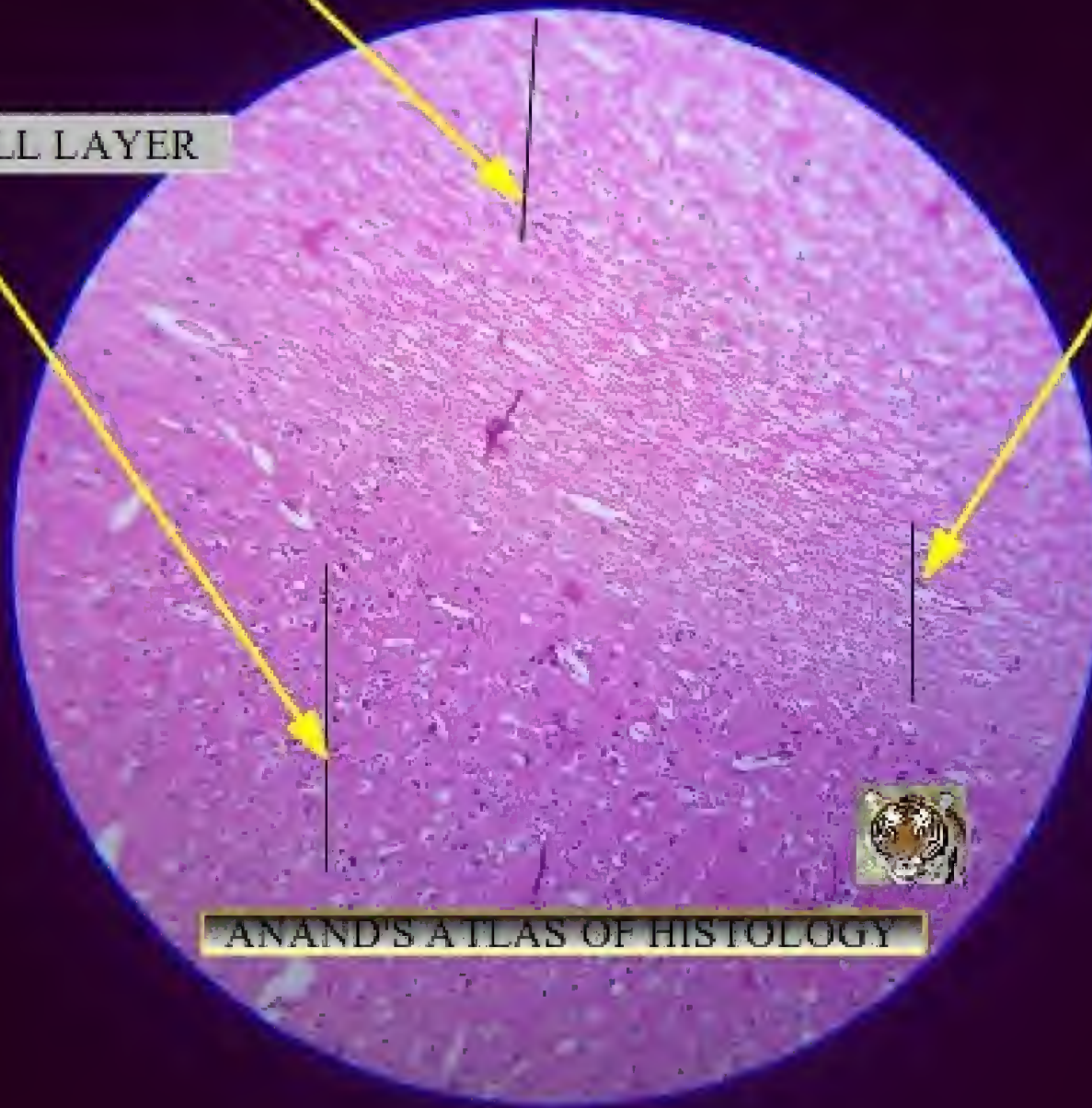
AUTONOMIC GANGLION

CEREBRUM

MOLECULAR CELL LAYER

EXTERNAL GRANULAR LAYER

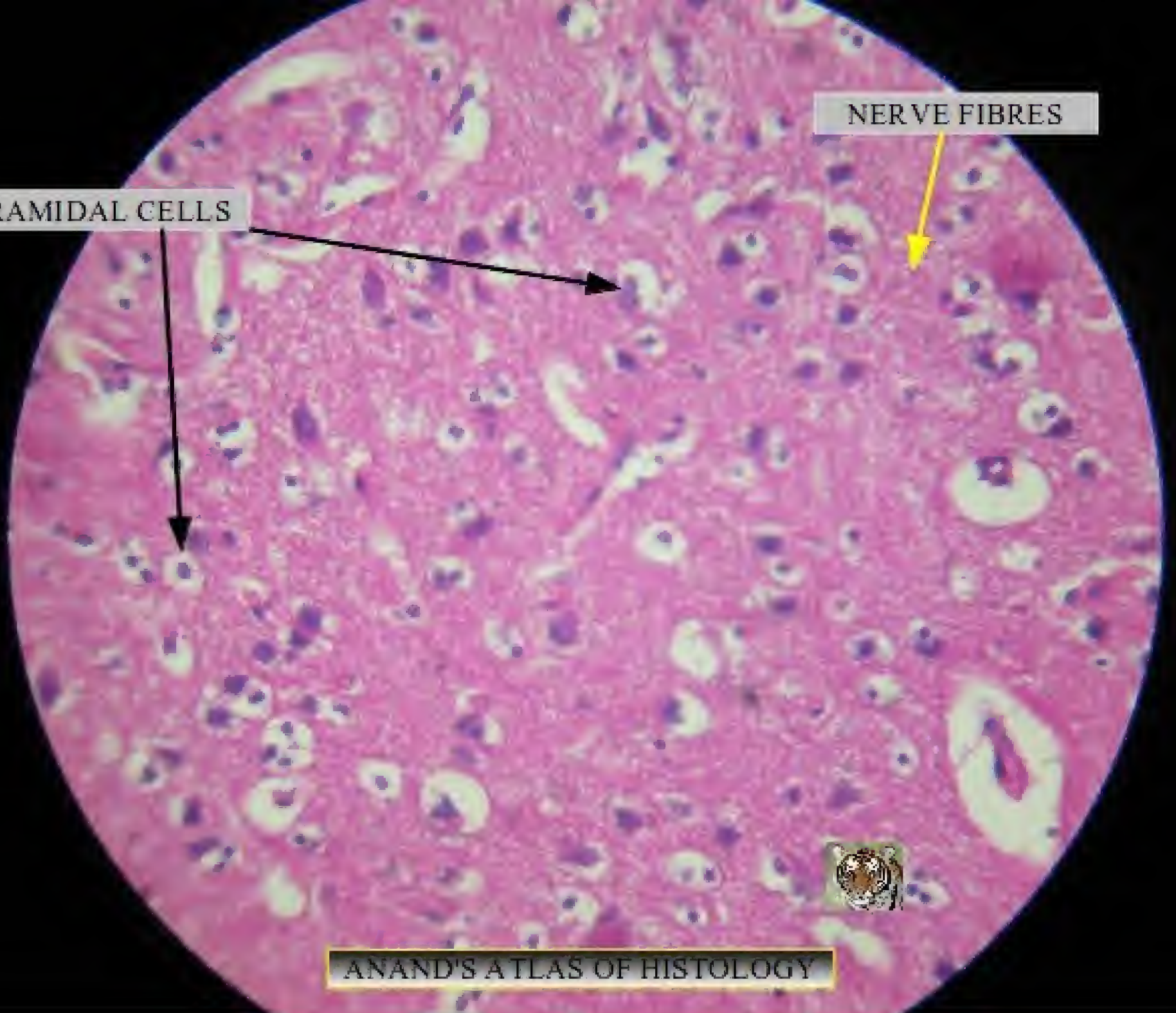
PYRAMIDAL CELL LAYER



ANAND'S ATLAS OF HISTOLOGY

PYRAMIDAL CELLS

NERVE FIBRES



CEREBRUM

POINTS FOR IDENTIFICATION

1. CEREBRAL CORTEX IS MADE UP OF SIX LAYERS
2. GRANULAR LAYER CONSISTS OF CLOSELY PACKED STELLATE CELLS
3. INNER PYRAMIDAL LAYER CONSISTS OF LARGE PYRAMIDAL CELLS (BETZ CELLS)

CEREBELLUM

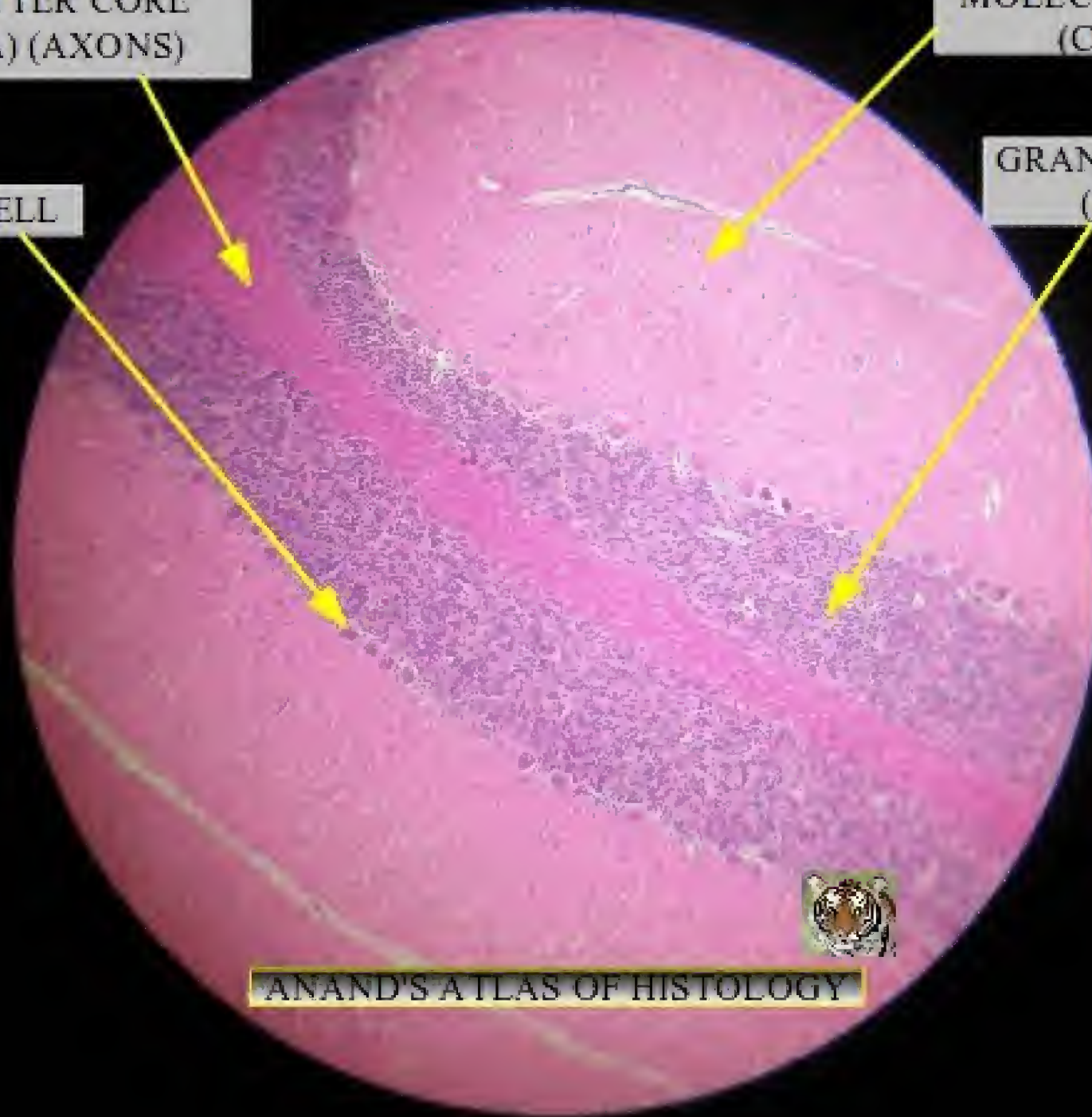
ANAND'S ATLAS OF HISTOLOGY

WHITE MATTER CORE
(MEDULLA) (AXONS)

MOLECULAR LAYER
(CORTEX)

PURKINJE CELL

GRANULAR LAYER
(CORTEX)



ANAND'S ATLAS OF HISTOLOGY

MOLECULAR LAYER

GRANULAR LAYER

PURKINJE CELL

WHITE MATTER

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CEREBELLUM

POINTS FOR IDENTIFICATION

1. MADE UP OF OUTER GREY MATTER AND INNER WHITE MATTER
2. GREY MATTER (CORTEX) MADE UP OF THREE LAYERS – MOLECULAR CELL LAYER, PURKINJE CELL LAYER AND GRANULAR CELL LAYER
3. WHITE MATTER (MEDULLA) IS MADE UP OF AXONS

SPINAL CORD

SPINAL CORD GREY MATTER

POSTERIOR HORN

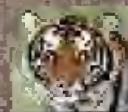
POSTERIOR GREY
COMMISSURE

ANTERIOR GREY
COMMISSURE

CENTRAL CANAL

ANTERIOR HORN

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SPINAL CORD WHITE MATTER

POSTERIOR FUNICULUS

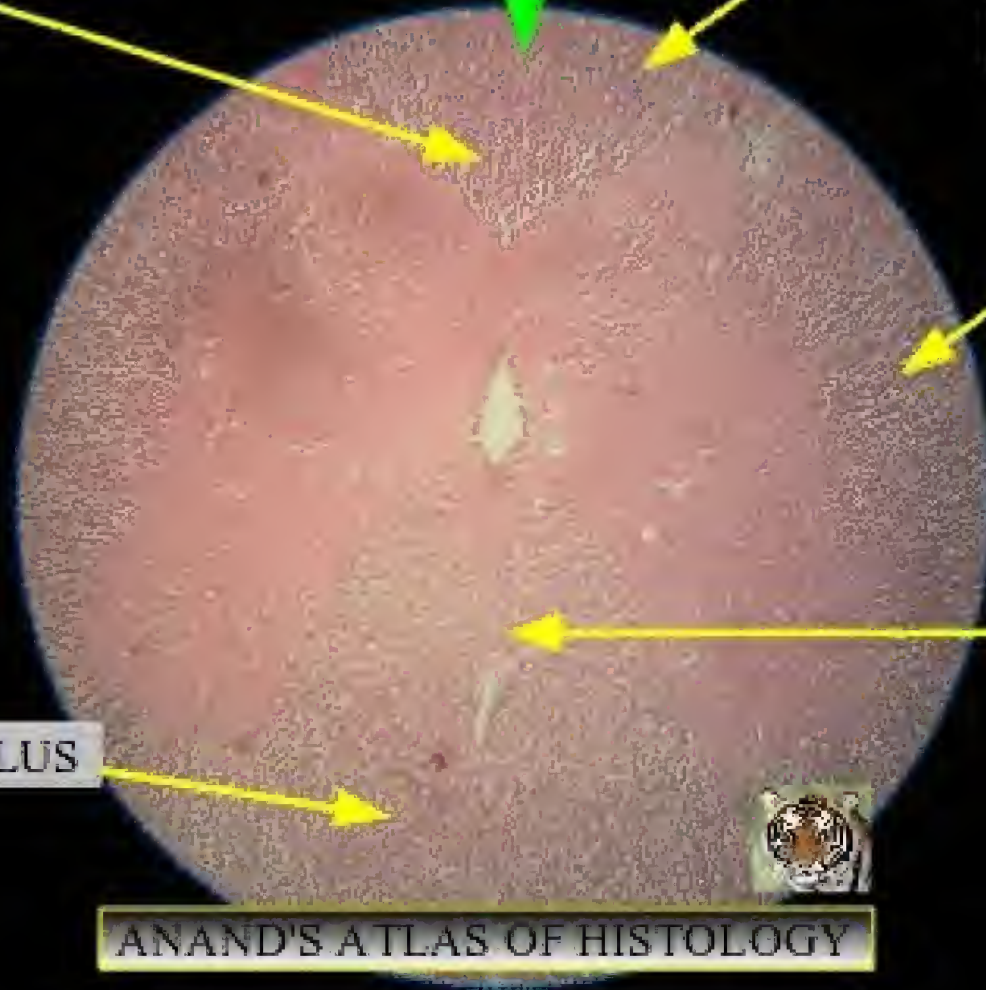
POSTERIOR WHITE
COMMISSURE

LATERAL FUNICULUS

ANTERIOR WHITE
COMMISSURE

ANTERIOR FUNICULUS

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SPINAL CORD

POINTS FOR IDENTIFICATION

1. PRESENCE OF GREY MATTER AND WHITE MATTER

2. GREY MATTER CONTAINS ANTERIOR AND POSTERIOR HORNS (LATERAL HORN IS PRESENT ONLY IN THE THORACIC SEGMENT)

3. WHITE MATTER CONTAINS ANTERIOR, LATERAL AND POSTERIOR FUNICULI

4. PRESENCE OF CENTRAL CANAL

SENSORY GANGLION

NEURONAL CELL
BODIES

MYELINATED
NERVE FIBRES

CONNECTIVE TISSUE
CAPSULE

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SATELLITE CELLS

MYELINATED
NERVE FIBRES

NEURONAL CELL
BODIES



SENSORY GANGLION

POINTS FOR IDENTIFICATION

1. LARGE NEURONS ARE SEEN ARRANGED IN THE PERIPHERY
2. EACH NEURON IS SURROUNDED BY A LAYER OF SATELLITE CELLS
3. CONNECTIVE TISSUE CAPSULE COVERS THE GANGLION

AUTONOMIC GANGLION

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CONNECTIVE TISSUE
CAPSULE

NON MYELINATED
NERVE FIBRES

NEURONAL CELL
BODIES

ANAND'S ATLAS OF HISTOLOGY



NEURONAL CELL
BODIES

NON MYELINATED
NERVE FIBRES

SATELLITE CELLS



AUTONOMIC GANGLION

POINTS FOR IDENTIFICATION

1. MEDIUM TO SMALL SIZED NEURONS ARE SEEN
SCATTERED ALL OVER
2. SATELLITE CELLS ARE SEEN ARRANGED ON THE
PERIPHERY OF THE NEURON BUT ARE NOT WELL
DEFINED
3. CONNECTIVE TISSUE CAPSULE COVERS THE
GANGLION

THANK YOU

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